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PSYCHOANALYSIS AND MEDICINE*

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CHICAGO

For about thirty years psychoanalysis, a theoretical concept of the personality, a precise and elaborately described method of psychologic research and a therapy of mental disturbances, has been living a peculiar, isolated existence on the borderline of medicine and of the natural sciences. This borderline existence is not due entirely to the unreceptive attitude of medicine toward psychoanalysis, for psychoanalysis itself has also been undecided as to where it belongs. Many psychoanalysts, in fact, question whether psychoanalysis should not be considered a distinctive discipline, related to medicine but essentially independent of it, just as archeology, though related to history, is nevertheless itself a self-sufficient science, or as paleontology is related to geology but is different in its methods and purpose. Even those psychoanalysts who, like myself, are convinced that, so far as psychoanalysis is a therapy, it belongs to medicine cannot overlook the fact that its subject matter, methods and language are so different from those of medicine that its assimilation by medicine is especially difficult. Indeed, a clear decision as to the citizenship of this young empiric discipline in the realm of science is theoretically as well as practically a highly complicated and unsolved problem. Medicine aims within certain limits to understand the body as a physicochemical process. Psychoanalysis deals with psychologic facts and tries to influence psychologic processes by psychologic methods. Consequently, by definition, psychoanalysis should be excluded from medicine.

Mental processes, however, belong to the characteristic manifestations of biologic systems and, as is generally known, influence such physiologic phenomena as weeping, blushing, or the secretion of the gastric juice. Furthermore, a number of diseases manifest themselves in the mental level as psychoses and psychoneuroses. Even after the cell-physiology of the brain has been highly developed it is not probable that physiologic or pharmacologic methods will be used to influence people's minds, for example, to persuade some one or to explain a mathematical thesis. In influencing pathologic mental processes, psychologic methods are used that are essentially similar to persuasion and to explanation. Probably the best method of influencing disturbances of psychologic nature will always be through psychologic means.

Nevertheless, to preserve the homogeneity of medicine, one might exclude psychologic methods even though their scientific and therapeutic value were acknowledged and regard psychology, pathopsychology and their practical application, psychotherapy, as disciplines related to but still lying outside of medicine.

One must realize, however, that it is artificial to separate mental diseases from physical diseases, mental processes from physical processes. There is a permanent interrelation between them in reality. And in therapy one cannot always easily decide in which cases a psychologic and in which cases a physiologic approach is indicated. One cannot divide the individual into a body and a personality; the individual is a psychobiologic entity.

DEVELOPMENT OF PSYCHOANALYSIS

Psychoanalysis started within medicine as a therapeutic attempt to influence hysterical symptoms by psychologic means. Under the influence of Charcot's studies on hysteria and its relation to hypnotic phenomena, Freud and Breuer developed the method of cathartic hypnosis. They observed that patients in hypnosis could remember certain forgotten events in their past lives which had an intimate relation to their symptoms. This recollection in hypnosis was accompanied by outbursts of emotion and was usually followed by the disappearance of the symptoms. Freud soon gave up the method of cathartic hypnosis and replaced it by the technic of free association. This technic supplied a more complete picture of the historical background of the symptoms and, apart from its therapeutic value, has yielded a deeper insight into human personality than was ever possible before. This method is responsible for the fact that psychoanalysis, two decades after it started as a modest therapeutic attempt to influence hysterical phenomena, developed a consistent theory of the personality.

The fundamental concept of the theory of the unconscious has deeply influenced all modern thinking. The discovery of the general dynamic effect of unconscious mental processes on overt behavior, which shows the limitations of the rational and conscious parts of the personality, has become so fundamental for the mental attitude of the educated man of the twentieth century that without it one cannot understand many of the products and manifestations of modern mental activities. It is not an exaggeration to compare the change in the attitude of man toward external reality that has resulted from this insight with the change that the system of Copernicus provoked four hundred years ago. The theory of the unconscious involves a new and sensible break in the anthropocentric attitude toward the external world. The system of Copernicus destroyed this anthropocentricity in the spatial cosmological sense, but man soon regained his anthropocentric attitude in a psychologic sense. That becomes especially clear if the doctrines of the rational philosophers of the seven-

* From the Department of Medicine, University of Chicago.

* Read before the Harvey Society, New York, Jan. 15, 1931.

teenth and eighteenth centuries, who put all their faith and hopes in the omnipotence of the cogitant intellect, are recalled. Instead of the earth the human mind became now the center of the universe. This started with the teaching of Descartes that nothing is certain except one's own thoughts, and this doctrine led in a cogent direct line to Kant's consistent anthropocentric thesis: The external world as we see it is dependent on the mind and its categories, which themselves are absolute and belong to the unchangeable structure of the mind. Psychoanalysis as a genetic theory now dethroned these new despots and monarchs of philosophic thinking, the Kantian categories, and considered them as products of adjustment to the physical environment. The infant's mental processes are subject neither to the logical nor to the moral categories of Kant, and, what is even more important, in every one's even in the adult's, unconscious personality there are mental processes which are not subject to the laws of logic. These processes, manifest for example in dreams, do not know the law of causality, only that of temporal sequence, and do not know such axioms as that the same thing cannot be at the same time in two different places. Briefly, rational thinking as well as moral feelings and prescriptions are products of adjustment of the organism to its environment, but they do not determine entirely our thinking and behavior, and a dynamically powerful portion of mental life is neither rational, that is, adjusted to the external world, nor moral, that is, adjusted to the demands of the community. The rationally adjusted part of the personality in everybody is in steady conflict with the unadjusted layers. The means of eliminating the disturbing influence of unadjusted tendencies is a dynamic act called repression, by which the unadjusted mental forces are excluded from consciousness and become unconscious. Thus, human personality can be divided in two portions, the adjusted ego and the original and impersonal Id, which is not yet synthetized into a harmonious unity and contains the different conflicting instinctual tendencies. In psychopathologic personalities this conflict between the infantile and the adult portions of the personality is quantitatively greater but qualitatively the same as in normal individuals. Thus mental disturbances, such as psychoneuroses and psychoses, can be understood as the more intensive and more overt manifestations of the unadjusted unconscious parts of the personality.

All these concepts are today not only generally accepted but have already become emotionally assimilated and, like the theory of evolution or the cosmological doctrine of the planetary systems, are now an integral part of modern thinking. The emotional consequence of this modified perspective is that man now feels himself more definitely to be only a small part of the universe. Because his belief in the absoluteness of his rational thinking has been broken, even this last claim to a special position in the world has lost its foundation. Rational thinking can no longer be regarded as its own self-sufficient cause, unapproachable by further scientific research, but as a product of adjustment to the world, and it is not only not absolute but is as relative as that birds fly and fishes swim. Our logical thinking is just as little the only possible form of thinking as flying is the only possible form of locomotion.

The scientific consequence of this new perspective is that psychology becomes relevant to the biologic sciences. Thinking is one of the functions of the biologic system, one means of orientation to the external world. The mental apparatus can be understood in the same way as the circulatory system, which in all its details is adjusted to the hydrodynamic problems which it has to solve. Similarly, the functions of the mental apparatus can be understood as adjustments to the problem of orientation to the environment. No teleologic philosophy is involved in this concept.

Thus definitely separated from philosophy, psychoanalytic psychology becomes a mechanical or, better, a dynamic science and describes the functions of the mental apparatus in terms of mechanisms or dynamisms. It studies in detail the development of the mind in all its phases during the difficult process of adjustment, which can be understood as a process that changes the unorganized, unsystematic, diffused manifestations of the infant's mind into the complicated system of the adult ego. It describes pathologic mental phenomena as due to the incomplete overcoming of early unadjusted periods and to a large extent it can even determine which phase of the development was unsuccessfully passed through, or, in other words, to which phases of the early development certain types of mentally disturbed individuals remain fixed.

This genetic and dynamic approach to the understanding of mental disturbances can be considered a decisive step in psychopathology. The psychodynamic approach makes possible the intelligent and systematic influencing of pathologic mental processes, that is to say, a causally oriented psychotherapy.

Psychotic and neurotic symptoms could be understood on the basis of the conflict just described between the infantile remainders and the adult part of the personality. The chief difference between the neurosis and a psychosis is the extent to which the repressed unadjusted mental content breaks through into consciousness after overcoming the resistance of the repressive forces. This breaking through of the repressed contents is much more complete in the different forms of psychosis. In the end-phases of schizophrenia, for example, one has the impression that the ego has given up all resistance and is dominated entirely by hallucinatory mental processes. In a psychosis even the very first adjustment of the ego breaks down; that is, the capacity of subordinating satisfactions of imagination to the evidences of sense perceptions. The consequence is a loss of orientation to the world. Of course, all the later achievements of development, such as esthetic and moral restrictions and inhibitions, also disappear in the psychosis. Psychosis thus can be considered as a flight from reality and from the adult form of existence back to childhood, to a happier time, in which phantasy prevails unhampered by actuality.

In the different forms of psychoneurosis the conflict between the two poles of the personality, between the conscious Ego and the primitive Id, is more manifest, since neither of them has a decisive victory. If the end-phases of a psychosis be compared with a silent battlefield after all the soldiers on the one side have been killed, a psychoneurosis is a battle still in progress. Psychoneurotic symptoms are partly manifestations of repressed tendencies and are partly reactions of the ego against these tendencies.

In psychoneuroses the conscious ego has still the upper hand, although it does not succeed entirely in repressing the unconscious tendencies. The important fact which shows the partial control of the ego is that this unconscious mental content can appear in consciousness only in distorted forms. These distortions are the compromises between the two antagonistic

forces in the mental apparatus; that is to say, they are a compromise between repressed and repressing forces. In these distorted forms the unconscious content can appear in consciousness without hurting the conscious personality.

Psychoneurosis and psychosis can be considered as different stages of the same mental process; that is, of the breaking through of the unconscious repressed, primitive part of personality. In a psychosis this process goes much further, for the difference between the conscious and the unconscious parts disappears and the unconscious dominates the whole personality, whereas in a neurosis the principal achievement of the later ego-development, namely, the acceptance of reality, remains more or less intact, and the unconscious tendencies penetrate the ego only in isolated symptoms, which play the rôle of foreign bodies embedded in normal tissue.

Apart from these results concerning the field of psychopathology, a certain type of dynamic manifestations of repressed mental forces has a special significance for internal medicine; the so-called hysterical dysfunctions and organ-neuroses, in which unconscious psychic tendencies produce physical symptoms. The investigation of this field requires an intimate cooperation of internal medicine and psychoanalysis, and its greater part must be left to the future.

All these findings of psychoanalysis in the field of mental pathology have become integral parts of modern medical thinking, just as the fundamental concepts of the unconscious and of repression have penetrated contemporary thought. The theory of fixation to infantile attitudes and the increased tendency to regress to these early patterns of thinking and feeling as seen in psychoneurotics and psychotics belong today to the basic concepts of psychiatry. But also psychic mechanism such as rationalization and projection, which have been understood as means of solving the conflict between conscious ego and unacceptable wishes and tendencies, are so generally accepted and employed in psychiatry, indeed also in general thought or conversation, that the young student of medicine often does not even know their origination from the psychodynamic system of Sigmund Freud.

In addition to the explanation of these seemingly so senseless mental processes of the psychoneurotic and the insane, psychoanalysis has become the psychology of all kinds of irrational manifestations of the mind, such as errors of everyday life, free-phantasying and especially the dream. It demonstrates that the apparent irrationality of all these phenomena is inherent in the fact that as a result of the individual's development our adjusted rational thinking has grown away from the more primitive types of thinking which is especially clearly represented in our dream life. But if we relearn the primitive language of the mental life of our childhood, we are able to understand the psychologic meaning of our dreams.

RESISTANCE TO PSYCHOANALYSIS

I must confine myself to the fundamental results of the psychoanalytic psychology which have become or are becoming significant for medicine. Indeed, these results are by no means such that they explain the resistance to them, especially not the resistance in the medical world. On the contrary, just this kind of approach to the problems of mental life brings psychology nearer to the biologic sciences and severs its traditional connection with philosophy.

As a matter of fact, the resistance to psychoanalysis is a complex phenomenon and has changed its nature during the thirty years since psychoanalysis began to disturb the habits of thinking and feeling of the scientific world and the general public. The first, chiefly emotionally tinged resistance, was entirely due to certain special results of the new empirical and microscopically detailed study of mental life. The discovery of infantile sexuality especially and of some infantile and asocial, consequently repressed, mental tendencies present in everybody's unconscious provoked a general rejection. These first manifestations of resistance have been so often and so well described that I feel no need to repeat them, especially as in the meantime these first reactions have lost their actuality. The world, in the last thirty years, has changed a great deal in its emotional and intellectual attitude, and in this change psychoanalysis has had its decent share. This first heroic period of psychoanalysis, in which it had to fight chiefly against emotional prejudices, is practically over. The Oedipus complex has found its acceptance in the two most conservative places—in the Oxford dictionary and in *Punch*. Psychoanalysts who still think that they have to awaken humanity from its indolent sleep are tilting against windmills.

The resistance has shifted gradually into the intellectual field. This intellectual form of resistance is based on inveterate habits of thinking and methods of investigation. It is no longer directed against the general or philosophic consequences of psychoanalysis which have become generally assimilated by modern thinking. And, indeed, the resistance has disappeared in all fields except in the birthplace of psychoanalysis; that is, in the field of medical research and therapy. Psychoanalysis needs no longer to endeavor to be accepted as a theory of personality but must seek to be accepted as a part of medicine, in spite of the fact that it is due to this new dynamic point of view that psychiatry has overcome its merely descriptive stage and has become an explanatory science.

Let us turn our attention now to this more serious intellectual form of resistance which is at work at present and makes it so difficult for the medical world to orient itself finally toward psychoanalysis.

I have referred already to the gist of this resistance. Psychoanalysis deals with psychic phenomena and this brings quite a new element into medicine. It introduces a subject matter which cannot be expressed in terms of time and space and threatens to disturb the homogeneity of medicine, which would prefer to deal exclusively with physicochemical facts and to employ chiefly experimental methods. The subject matter as well as the nature of psychoanalysis is apt to arouse the general distrust of the natural scientist against psychologic facts and methods. Thus the paradoxical situation arises that also psychiatry, an acknowledged part of medicine, necessarily shares the fate of psychoanalysis in losing the respect of the rest of the medical world, since—especially here in America—it has assimilated so much from psychoanalysis.

The homogeneity of a science, the uniformity of the methods employed, are no doubt respectable postulates, but there are more important principles in scientific research. There *are* mental phenomena and they *are* interrelated with other biologic phenomena, and science cannot close its eyes to phenomena only because it cannot master them with the usual and tested methods. The subject matter is primary—and not the method. The method must be adjusted to the nature of the subject

matter. Still it is a common tendency of the mind, a kind of inertia of thinking, to force methods that have proved successful in one field on a new but different field, instead of seeking for new and especially adjusted methods which the new field of phenomena requires. Had psychoanalysis been an experimental science, no resistance to it would have been offered by medicine. It would in this case probably have been accepted by medicine, but it would have had to abandon the investigation of the problems of personality. On the other hand, it is undeniable that distrust of psychologic method was well founded. Although psychology since the middle of the last century claims to be a nonphilosophic discipline, up to Freud's appearance it could not produce results of an empirical nature adequate to dissipate the distrust against it. There has been no prospect that psychology will ever be able to disavow the pessimistic statement of Moebius of the "hopelessness of every psychology."

Indeed, to understand the personality of another individual requires methods in many respects basically different from those employed in the natural sciences. Every empirical science consists in the refinement and systematic development of the methods of observation which one uses in everyday life. In every science we can use only the senses we actually possess, although we can increase their exactness and eliminate to some degree their defects. Psychoanalysis, in contrast to earlier psychologic methods, has simply refined and systematized the everyday methods used to understand other persons' mental situations. This common sense understanding is, however, a rather complex faculty. Its chief tool is a kind of identification with the other person, that is, a putting of oneself in the other person's mental situation. If you observe the movements of another, the expression of his face, the tone of his voice, and if you listen also to what he says, you get an idea of what is going on in his mind. This understanding is derived from the fact that the object of observation is a similar being to the observer—both are human personalities. This similarity between observer and the object of observation is quite essenital and is existent only in the field of psychology. If you observe physical phenomena, such as the behavior of two spheres which move on a table, you are entirely limited to what you see and are absolutely unable to foretell what will happen in the next moment unless you have learned the nature of such rolling spheres through previous experiences. If you observe another person, then you also see external manifestations of his behavior, but at the same time you also know from your own introspective experience: what you feel when you use the same means of presentation, the same facial expression, words, movements, as the observed person does. You understand the other person's motives because you know your own reaction in a similar situation. In psychologic observation the overt behavior of the observed object is supported by direct or introspective knowledge of one's own person.

The importance of this coexistence of objective and introspective observation in psychology cannot be stressed enough, not only because it is the basic difference between physical and psychologic disciplines but also because this peculiarity is the only advantage of the psychologic observation over the physical examination, which, on the other hand, has a great number of advantages, the greatest of which is the possibility of experimentation. All psychologic methods which failed to recognize and exploit this one advantage of psychologic examination must necessarily remain of limited value in the investigation of human personality. I mention only experimental psychology and behaviorism. Both these methods imitated the methods of experimental science and therefore either simply omitted to use and to develop the commonsense faculty of understanding other persons' mental processes or, as in the case of behaviorism, specifically refused to use this faculty. The prescientific man indeed extended the use of psychologic interpretation even into the inanimate world and saw the wrath of God behind thunder and his punishment behind lightning. Behaviorism makes exactly the opposite error and refused to analyze the psychic background even in the behavior of living beings. Animism put personality into inanimate nature, but behaviorism wishes to rob even human beings of their personality. It is an almost tragicomical sight to observe how behaviorism stubbornly deprives itself of one source of knowledge and restricts itself to the observation of the so-called overt behavior. But are not words also objective facts, and when you hear words how can you prevent them from conveying to you a knowledge of the other person's psychic processes?

I admit that this common sense understanding of other individuals' mental situations is an unreliable method. But is not the task of every science to improve on natural faculties of observation? Is not the common sense optical observation also unreliable? Was it not necessary to support it by scales and magnifying pointers of physical instruments or by microscope?

SOURCES OF ERROR IN PSYCHOLOGIC OBSERVATION

I think it is time now to describe more concretely what I mean by the natural faculty of understanding the mental situations of another person.

You see a common soldier attack an officer. Suppose you ask him why he did it. He tells you how his superior treated him unjustly for a long time and continually humiliated him until finally he lost control of himself. Then you understand his situation because everybody in his life has experienced similar feelings. When you say, then, that the soldier attacked his superior because the latter treated him unjustly and that finally the soldier's embitterment became stronger than his fear of punishment, you have a causal theory of his behavior which contains even a quantitative judgment of a certain degree of probability. So much understanding can be attained by means of the common sense everyday psychology, which, as you see, is a common and natural faculty comparable to our visual and acoustic faculties except that it is much more complex. This faculty of psychologic understanding employs the various forms of sense perceptions and in addition the introspective knowledge of one's own emotions which one uses to understand another person by means of identification. This faculty, which is possessed in varying degrees by every one, is the basis of the psychoanalytic approach, just as the optic and acoustic perceptions are the basis of physical experimentation. But science begins with the refinement and development of these everyday methods and faculties. That the common sense method in psychology is rather unreliable is evident. There are several sources of error. The first and most important one is that—referring again to our simple example—the common soldier who tells you the story has no reason for telling you all of his motives in attacking his superior. He will give you a story which puts him in a good light. You may, if you are expert in human nature, which in Germany they call a

good *menschenkenner,* guess his real motives and you can discount his distortions, but you have no evidence as to whether you are right or not.

A second source of error is that even if the soldier wanted to tell you the true mental situation in which he acted he is unable to do so because he himself does not know all of his motives. He deceives not only you but also himself, and with his story he tries to put himself in a good light not only in your eyes but also in his own eyes. In mentioning this second source of error, however, I am referring to one of the basic findings of psychoanalysis, that is, the fact of repression, which is a dynamic tendency to keep out of consciousness desires and motives which would disturb the harmony of the conscious ego and disturb the good opinion which we like to have of our own selves.

A third source of error is that the soldier may be so different from you in his psychologic make-up that you cannot understand his motives. The possibility of identification is contingent on similarity between observer and observed. This similarity, of course, is always present to some degree, since both observer and observed are human beings. Nevertheless, differences of sex, race, nationality, social class, and so forth, diminish this similarity and bring into play a new source of error. Men understand each other better than they do women, and women understand each other better than they do men. We understand people of Western civilization better than we do Orientals. The greater the difference between two minds, the greater the difficulty in understanding.

The difficulties of adults in understanding either young children or savages or psychotics and neurotics have the same reason; namely, that their mental processes are different from the mental processes of normal adults and belong to a more primitive level of mental development.

Finally, a fourth source of error is that the observer himself has, as it were, psychologic blind spots based on his own repressions. He has motives which he himself excludes from his own consciousness and does not want to admit to himself. He will not, therefore, be able to detect these in other persons. Again, one requirement of psychologic understanding, the introspective knowledge of one's own state of mind, is often lacking in common sense observation because in certain situations this introspective knowledge is blocked by repressions of one's own motives. The dynamic importance of one's own repressions as an obstacle in understanding mental phenomena in other persons can be appreciated only if we realize that the uniformity and harmony of our conscious ego are guaranteed only through repressions. To become an adult it is necessary to forget the infantile way of thinking. The attraction of this infantile form of mental life is great since it is subject in a much higher degree to the pleasure principle than the adult mentality, which has to adjust itself to reality. It is characteristic of infantile mental life that it does not take into consideration the facts of reality which resist the subjective wishes and needs. The recognition of a strange and by no means always benign external reality is the problem which the child has to solve in his later development. The most important means of overcoming the infantile form of thinking and the infantile wishes and tendencies is repression through which the ego puts away the disturbing remnants of his infantile existence. Through repression these infantile remnants become unconscious and form the unconscious part of the personality. The special difficulty in understanding children, savages and the insane is thus based not only on the differences between their mentality and ours but also on a mental force within ourselves which prevents us from understanding them—I mean repression. To be a normal adult one must forget, or in other words, overcome the primitive part of one's personality, and therefore one cannot understand either the primitive mental processes of others or one's own dreams which are manifestations of an infantile personality. Science, in the investigation of mental pathology, has to overcome the subjective difficulty which is inherent in the fact of man's own repressions.

I admit that the enumeration of the many sources of error which have been classified under these four categories is likely to raise in every one a deep skepticism as to the possibility of any scientific psychology. Some of these sources of error seem simply unsurpassable.

This great variety of difficulties sufficiently explains why psychology for such a long time failed to find a method capable of eliminating or diminishing all these types of errors. Therefore, psychology was not a science but the privilege of a few geniuses, the great *menschenkenner*—I mean the great authors—novelists and dramatists. Only such great *menschenkenner* were able to overcome, at least to some degree, most of these difficulties in understanding other persons' real motives in spite of the human tendency to deceive others as well as ourselves, and in spite of differences of age, race and sex. Such geniuses are able to do all this because the fourth of the sources of error, namely, their own repressions, are less developed than in others. The smaller amount of one's own repressions is just the peculiarity which makes some people better *menschenkenner* than others. Knowing their own personality better, they are more able to understand others.

ELIMINATION OF THE SOURCES OF ERROR

Certain methodological discoveries have made it possible for psychology to become a science of personality. That every scientific development follows methodological inventions and innovations is well known. Anatomy began with the introduction of the method of dissection, histology with the microscope, bacteriology with methods of growing cultures. Psychology, as an empirical science of personality, begins with the discovery of the method of free association by Freud.

I do not maintain that all four sources of error are entirely eliminated by the method of free association, but they are reduced to such a considerable degree that the requirements of an objective science are met. The patient is requested to report everything that goes on in him during the analytic session; that is, he is asked to verbalize everything that occurs to him in the original sequence and form without any modification or omission. He is asked to assume a passive attitude toward his own trains of thought; in other words, to eliminate all conscious contol over his mental processes to which he is to yield and merely to report. This simple procedure seems at first to be a rather trivial device and it is not so easy to appreciate its research value. But please remember that the methods of percussion and auscultation seem also rather unpretentious and trivial, and it is only the interpretation of the observed small acoustic deviations that make them so important for medicine.

The first source of error, namely, the lack of interest of the object of the investigation in giving a full account of his mental situation, is in this method eliminated by

the therapeutic situation. Only a suffering and sick person who hopes to be freed from his symptoms by following the physician's prescriptions will be willing to cooperate and to give such an intimate insight into his personality as is required by the method of free association. When one yields to one's spontaneous trains of thought, ideas soon crop up which one usually would reject and drop and shove away from the focus of attention. While one yields to this uncontrolled manner of thinking, an unknown part of the personality becomes gradually more manifest. In eliminating or at least diminishing the conscious control, all kinds of disagreeable and irrational mental contents appear which controlled thinking would interrupt and block before they should come to full clarity. In the therapeutic situation the patient gradually learns to overcome the reluctance one usually has to giving up the conventional façade which people habitually turn toward one another, and step by step learns to become entirely frank and to display himself mentally nude, and even to give up the façade which he uses toward himself. I might therefore venture to say that the therapeutic situation is the only situation that is suitable for an efficient psychologic investigation, as only this situation guarantees the willingness of the observed object to show himself as he really is.

The only other situation which meets this requirement is the didactic analysis in which a student of analysis subjects himself to the procedure in order to learn the technic of analysis. In this case not the hope of being freed from a disease but the wish to learn the method by studying oneself is the motive that guarantees his frankness and willingness to give insight into his inner processes. Without this cooperation between the object of observation and the observer, psychology is impossible. In physics, the willingness of lifeless objects to be studied is not necessary, but in psychology the analyst is absolutely dependent on this willingness.

The second source of error, namely, that the observed individual on account of his repressions is unable to give a full report of his own mental situation, also has been solved by means of the analytic technic, which serves to eliminate conscious control of the mental processes. The uncontrolled trains of thought are in a much higher degree subject to the repressed mental forces than is one's everyday thinking. Such trains of association are no longer determined by the conscious processes, and therefore they take a much more irrational character, similar to the day dreaming to which men give themselves in leisure hours or before falling asleep. Patient and long observation of these uncontrolled free associations has led to the development of a technic of interpretation which allows the psychoanalyst to reconstruct the unconscious tendencies that determine the sequence and content of these spontaneous trains of thought. In this way he is able to obtain a deeper insight into the make-up of the personality and to understand motives and emotional connections which are normally covered up by the controlling and selective functions of the conscious ego and of which the observed person himself consequently was not previously conscious. Thus, the second source of error, the inability of the patient to give a full account of the motives of his mental processes, is eliminated.

The third source of error was a subjective one in the observer himself; namely, his difference from the observed object. In some cases identification is almost impossible, as for example often in the case of mentally sick persons who revert to primitive infantile forms of mental activity. The long duration of the psychoanalytic observation, daily over a period of months, is the only means by which this difficulty can be overcome. If you travel in a foreign country you are at first quite unable to understand the mentality of the inhabitants even though you may understand their language. Their facial expressions and their reaction patterns are unfamiliar. But in time you learn their reactions without being able to tell how and why, and you gradually become able to orient yourself psychologically in this foreign country. The same thing happens in the course of a long psychoanalysis. Even a peculiar neurotic personality becomes familiar through prolonged and patient observation.

Finally, the fourth source of error due to the blind spots of the observer caused by his own repressions must also be eliminated if psychoanalysis claims to be regarded as a reliable means of investigation. The means of overcoming this difficulty is the preparation of the observer by his own analysis through which he overcomes his own repressions, learns to understand the unconscious part of his own personality, and in this way becomes able to understand manifestations in others to which he was blind before. I feel that I must explain this difficulty in a more concrete way by referring again to the example of the soldier who attacked his superior. Assume that the observer is a person of a basically tyrannical nature who, however, will not admit his tyrannical propensities even to himself and tries to rationalize his own aggressive and domineering tendencies by self-deceptive formulations. Such a person, observing the scene between the soldier and his superior, will be inclined to overlook the superior's brutality or tyranny and will tend to blame the soldier for the officer's aggressions. He will have great difficulty in understanding the point of view of the common soldier and in recognizing his embitterment, and will tend to see in him a rebel and thus justify the attitude of the tyrannical officer, with whom he can more easily identify himself. For he wants to keep his own tyrannical tendencies hidden from himself and nevertheless, at the same time, to give vent to them. He will therefore be blind to similar tendencies in others, for the recognition of such tendencies in others involves the danger of being forced to admit similar motives in himself.

The didactic analysis of the observer serves to overcome this subjective source of error. It increases the knowledge of the observer's own personality and so enables the analyst to allow for the disturbing influence of his own character trends. The International Psychoanalytical Association has therefore for many years made it obligatory for every psychoanalyst, before undertaking the analysis of others, to undergo a psychoanalysis himself. Just as astronomical observation must discount the subjective error which is called the "personal equation," so psychoanalytic observation is impossible without knowing the peculiarities of one's own personality which may obviate an objective psychologic observation.

There are, therefore, four sources of error inherent in everyday common sense psychologic observation which systematic psychoanalytic technic eliminates by four devices: The unwillingness of the object to disclose himself to the observer is eliminated by the fact that there is a therapeutic situation; the inability of the object to give a full account of his mental state is eliminated by the method of free association; the difference between observer and observed object by the

long and systematically repeated observation; and the blind spots of the observer by the didactic analysis. By the employment of these four devices, psychoanalysis has succeeded in refining the common faculty of understanding other persons' mental processes and in developing it into a scientific method which can be learned by almost any serious student and which can be controlled objectively.

The efficiency of this method has been best proved by the fact that the understanding of other individuals' mental processes has been extended to cases in which the common sense understanding and even the genius of the great authors has entirely failed. I mean the cases of psychosis and psychoneurosis. The seemingly unintelligible irrational and senseless behavior of the insane, the strangeness and irrationality of the psychoneurotic symptoms can be psychologically explained and can be translated into intelligible language.

PSYCHOANALYSIS AS A THERAPEUTIC METHOD

The importance of the therapeutic situation which, except for the didactic analysis, is the only suitable condition for detailed psychologic research, is responsible for a unique feature of this new discipline. I mean the coincidence of therapy and research. In psychoanalysis the research takes place during the treatment, or, in other words, the ends of the treatment and research coincide.

After Freud had learned that neurotic symptoms are dynamic manifestations of repressed mental tendencies which the patient excludes from his consciousness and which return into consciousness in a disguised form, in the form of unintelligible symptoms, he realized that the way to free the patient from his symptoms was to make conscious the underlying repressed tendencies. In this way psychoanalysis extends the field of activity of the conscious ego over such portions of the personality as are unconscious before the treatment. The patient, especially as a result of the emotional experiences of the analyses, becomes more conscious of himself and becomes able to control a greater part of his mental forces than he could before. He becomes able to master also those forces which were bound up in the neurotic symptoms and to use them for normal activities. This is the way of his healing. And so the aim of therapy and research is the same, a more complete knowledge of the personality. This is indeed a unique fact in the field of medicine. In all other forms of medical treatment the patient plays a passive rôle. It is not only not necessary to initiate the patient into the details and mechanisms of his disease, but it would be in most cases disadvantageous to do so. In the case of psychoanalysis, however, the patient's knowledge of the repressed mental contents responsible for the symptom formation evinced itself as *the* therapeutic agent. This lucky coincidence of a method of therapy with the method of scientific research is responsible for the unique fact in medicine that therapy is not only one approach to scientific knowledge but the very source of it.

The psychoanalytic technic which I have lauded as the great methodological invention which made of the research of personality a science, and of psychotherapy an etiologic treatment, may appear too simple and trivial to be hailed as responsible for the development of a new science. Some may object: What is the great new thing which psychoanalysis does? It takes suitable objects of investigation who are willing to give an insight into their personalities and gives them the simple technical instructions to give up conscious control of their trains of association. I agree that the method is really simple, as every scientific method is. The secret of its efficiency is only that it is adjusted exactly to the nature of the subject matter of the investigation. The whole development of scientific medicine in the modern age is also due to the simple device, instead of speculating about the human body, to look at it, to dissect it and to investigate all the details of its construction. The psychoanalyst listens in the same way as the anatomist looks. And this analogy goes really deeper than it may seem. The preanatomic medicine consisted also in vague generalizations and speculative concepts similar to those of the prefreudian psychology. Psychologists spoke about emotions, about will, ideas, perceptions and apperceptions, but they were not interested in the actual and detailed mental content. The introduction of dissection was not a smooth and easy process. It encountered all the emotional prejudices of the contemporary mind just as the dissection of the personality has aroused all the emotional prejudices of our day. If one reads the writings of some critics of Freud in Germany and replaces the word "personality" or "mind" with the word "body," one has the same arguments that were set forth against the dissection of the body in the sixteenth and seventeenth centuries. Psychoanalysis is a sacrilege, it degrades the mind, it drags down into the mud our highest mental possessions. Do you not recognize in these sentences the style of the critics of dissection of the body? Anatomy and physiology no doubt brought about a great disillusion: scientists did not find any place for the spirit. And psychoanalysis also brought about a disillusion. The dissection of the mind reduces the whole complexity of the personality with all of our highest strivings and intimate vibrations to a system of dynamic forces which under sober scientific aspect lose all connotations such as good and evil, high and low, beautiful and hideous. All these evaluations eliminated from the field of science naturally retain their significance in practical life.

I would give a false impression if I stressed only the simplicity of the psychoanalytic method. It is simple only in its general principles; that is, in the principle that one has to listen to what the patient says. The scientific evaluation of the material that is obtained is, however, by no means simple. An elaborate technic of interpretation based on long and painstaking comparisons makes the learning of this method just as difficult as the learning of the use of the microscope. It requires long experience and training of the complex faculty of understanding the mental situations in others. Training in the method of interpretation itself can be compared with the learning of a new language. Dreaming and all the manifestations of the unconscious mind speak a different language from that of the conscious mind. It is a kind of language in pictures and its relation to conscious thinking is similar to the relation of ancient picture writing to modern writing with letters.

CONCLUSION

I see the significance of psychoanalysis in its relation to medicine in the following two accomplishments: 1. With the help of a technic specifically adapted to the nature of psychic phenomena it developed a consistent and empirically founded theory of the personality suitable to serve as a basis for the understanding and treatment of mental disturbances. 2. It gave a concrete content to the philosophic postulate which considers living beings as psychobiologic entities by investigating

in detail the interrelation of physiologic and psychologic processes. The greater part of these investigations must, however, be left to the future to be accomplished.

I must confess that I feel my presentation incomplete because I have touched only the actual results of psychoanalytic investigation and focused my interest on the method. But I think that it is more interesting and important for physicians to hear about the scientific nature and methodology of psychoanalysis if they desire to become oriented toward this young science so widely challenged, so problematic, and still so unknown. If the reader has obtained the impression that the method itself is sound, it is of secondary importance whether the results are finally tested or not. If the method is sound, in time the results must also become sound and acceptable. Let me conclude with a sentence which seems best to characterize the importance of Freud's life work:

Talleyrand said once that language is the best means to hide our thoughts, a truth which only a diplomat could have found. Freud's accomplishment is that he created a method by which language is no longer useful only for hiding our thoughts but is also good for investigating them.

THE INTRACAROTID METHOD OF TREATMENT FOR MENINGITIS WITH RECOVERIES *

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As reported in a previous communication,[1] the intracarotid injection of various serums and chemical agents has been found a safe procedure in the lower animals and has yielded some encouraging results in the treatment of experimental pneumococcus and streptococcus meningitis of dogs, when combined with spinal or cisternal drainage and intracisternal medication.

Dogs infected by the intracisternal injection of young broth cultures of virulent type I pneumococci or highly virulent hemolytic streptococci developed symptoms within twenty-four to thirty-six hours and succumbed within three to six days with all the classic signs of fulminating meningitis, including the characteristic changes in the cerebrospinal fluid.

But from two to six dogs out of each ten with pneumococcus meningitis made complete recoveries when the following treatment was instituted within twenty-four hours after infection and when symptoms of meningitis and spinal fluid changes were first apparent: (*a*) cisternal drainage; (*b*) the injection into each common carotid artery of 0.5 cc. per kilogram of weight of a mixture of polyvalent antipneumococcus serum or Huntoon's antibody solution and a 1:100 solution of optochine (ethylhydrocupreine) hydrochloride [2] followed by (*c*) the intracisternal injection of 0.5 cc. of the mixture.[3]

During the past year, however, similar experiments conducted with the assistance of Dr. K. W. Amano and Miss Anna Rule, employing Felton's concentrated antipneumococcus serum, kindly furnished by manufacturers, and a similar concentrated serum prepared by the Massachusetts Department of Health and kindly furnished by Dr. Benjamin White, have yielded somewhat better results, probably because they contained more type I antibody than the serums previously employed.

In experimental streptococcus meningitis, however, the results of this plan of treatment were much less encouraging, probably because of a lack of sufficient antibody in ordinary polyvalent antistreptococcus serum and because the use of such chemotherapeutic agents as gentian violet, acriflavine, metaphen and Pregl's solution of iodine, did not appreciably improve the results.

During the past year however, somewhat better results were observed with the intracarotid and intracisternal injections of scarlet fever antitoxins, probably because of the higher antibody content for the hemolytic strain of streptococcus employed in our experiments.

Since a large number of experiments at least proved that the method of treatment was entirely safe and apparently based on a sound theoretical basis in that antibacterial agents were brought in high concentration to the infected tissues even though for but a brief period of time, the method has been employed in the treatment of pneumococcus and streptococcus meningitis of human beings during the past two years. At the outset however, it was hardly hoped that exactly similar results could be obtained because the inevitable delays in diagnosis made it impossible to start the treatment at the outset of the disease or before plastic exudates were formed. Furthermore, in the experimental disease of dogs, we were not dealing with primary foci of suppuration in the nasal accessory sinuses or mastoid cells, as is so commonly the case in septic meningitis of human beings. This occurrence greatly complicates therapeutic measures because of the impossibility of instituting thorough drainage and results in continuous infection or reinfection of the meninges.

Indeed, the majority of our patients were advanced to the point at which they were moribund or approaching that state and the treatment was instituted with an almost forlorn hope of success.

Contrary to my expectations, the majority of cases were of streptococcus meningitis. While there is little to choose between streptococcus and pneumococcus meningitis so far as mortality is concerned, as the death rate from both is over 95 per cent, yet, from the standpoint of the results of treatment of the experimentally produced disease in dogs, pneumococcus meningitis offers more hope since Felton's antipneumococcus serum plus optochin hydrochloride renders available a combination that has not been matched in effectiveness by antistreptococcus serums with or without such chemical agents as acriflavine and gentian violet.

Indeed, the first case in which the intracarotid method was employed was one of streptococcus meningitis, secondary to sinus infection, occurring in an adult in the service of Dr. Spencer Kauffman at the Jewish Hospital of Philadelphia. Pregl's solution of iodine and neutral acriflavine were given intracarotidally by Dr. Kauffman, because our results with antistreptococcus serum at that time were not sufficiently encouraging to warrant its use, and the primary results were so good that for a space of a week or ten days hopes of recovery were entertained. Spinal and cisternal drainages were made but intracisternal medication was not given. Unfortunately, guide ligatures were not placed

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* From the Research Institute of Cutaneous Medicine of Philadelphia and the Diagnostic Hospital Endowment of the Graduate School of Medicine of the University of Pennsylvania.

1. Kolmer, J. A.: The Intracarotid Treatment for Experimental Pneumococcus Meningitis, Arch. Otolaryng. **9**: 509-527 (May) 1929.

2. 1 cc. of a sterile 1:100 solution added to each 20 cc. of serum or antibody solution.

3. The intracisternal dose per dog and not per kilogram of weight.

around the carotid arteries at the first operation, which made it impossible to inject one of them the following day. All of our experiments have shown that bilateral injections are required even though symptoms suggest that the meningitis may be unilateral. However, clinical and spinal fluid improvement were so marked after forty-eight hours that it was thought that subsequent injections might not be required. This was likewise a mistake so far as the outcome and our experiments were concerned, because we have not been able to save any dogs unless at least three treatments at daily intervals have been given, regardless of clinical improvement. At any rate this patient relapsed and succumbed, without any further attempts at intracarotid therapy being made, and with symptoms suggestive of cerebral abscess after so marked temporary improvement as to permit the patient to be out of bed.

Since then seven additional cases of streptococcus meningitis have been treated. Three of these were in children and four in adults. All were secondary to otitic or sinus infections. In three the streptococci were of hemolytic types, in one the organisms were nonhemolytic, and in three the type was not reported on. Polyvalent antistreptococcus serum was given to two, while the remaining five were treated with Pregl's solution of iodine or acriflavine administered by intracarotid injection. All received cisternal or spinal drainage along with intracarotid injections, but only one received intracisternal injections of serum. In one case, occurring in a child of 18 months, as many as fifteen intracarotid injections were given. Five patients showed temporary improvement after the first to the third treatments, and in one case improvement was again so marked after the third treatment that hopes for recovery were entertained to the point at which the patient was allowed to leave the hospital, only to return in a few weeks with a relapsing and fatal infection showing at autopsy an abscess in the right frontal lobe of the brain.

None recovered. Two adult patients were moribund and only one treatment was given to each; one of these died a few hours later and the condition of each was so extremely bad that nothing but a forlorn hope for success was entertained.

Four cases of pneumococcus meningitis have been treated, with one recovery. Three of these were of sinus or otitic origin occurring in adults and all of them terminated in death. One patient was moribund and received but one treatment. A second patient received two treatments, and the third received a total of five treatments. In this case, secondary to ethmoiditis, the primary improvement was again so marked after the first treatment that hopes for recovery were entertained. Indeed, the patient improved to the point of being allowed out of bed but relapsed about sixteen days later and died with signs of abscess in the temporosphenoidal lobe; unfortunately, an autopsy was not permitted.

The case of recovery occurred in a woman, aged 25, with pneumococcus meningitis associated with lobar pneumonia. She was admitted to the service of Dr. Ralph J. McMahon of the Ideal Hospital of Endicott, N. Y., June 10, 1930. On the day of admission, cultures of the spinal fluid were sterile but cultures made of a second fluid drawn the following day yielded a growth of pneumococcus and later the total cell count reached as high as 1,066 cells per cubic millimeter of fluid. June 12, two days after admission, Dr. Whittemore and Dr. Crosier gave the first intracarotid injections of Felton's antipneumococcus serum with optochin hydrochloride along with spinal drainage followed by similar treatments, June 13, 14, 16, 17, 18, 19 and 20.

June 11, before the first treatment, there was severe headache, slightly stiff neck and a positive Babinski sign with a temperature of from 104 to 105 F. Following the treatment the temperature dropped to 100.

As an interesting and unusual complication in this patient there developed an aneurysm of the left common carotid artery, doubtless the result of the large number of injections. August 5, Dr. Whittemore and Dr. Crosier ligated the artery below the aneurysm, opened the sac and ligated above. This is the first and only instance of traumatic aneurysm brought to my attention. The patient, however, made an uneventful recovery and was discharged from the hospital, August 18.

Whether or not recovery can be reasonably attributed to the intracarotid medication is a matter of conjecture, as the prognosis in pneumococcus meningitis without primary foci of suppuration in the mastoid cells and nasal accessory sinuses is somewhat better. Furthermore, signs and symptoms of meningitis during the course of pneumococcus meningitis are sometimes due to acute meningeal congestion designated as "serous meningitis" or "meningismus" and in which the prognosis is always good. But in this type the cerebrospinal fluid is always clear and sterile, although under pressure, whereas in the case here briefly summarized a real meningitis was present since the spinal fluid was cloudy and presented pneumococci in both smears and cultures.

Another case resulting in recovery was one of staphylococcus meningitis treated with intracarotid injections of Pregl's solution of iodine and reported to me, March 22, 1929, by Dr. Albert S. Crawford, surgeon in charge of the division of neurosurgery of the Henry Ford Hospital of Detroit.

The patient was a girl, aged 8, with an osteomyelitis, who developed a septicemia and later an acute meningitis. *Staphylococcus aureus* was recovered from the blood and *Staphylococcus pyogenes* from the spinal fluid. When first seen the spinal fluid was turbid. The patient had a temperature of 104 F. and was very toxic. She was practically comatose with a rigid retracted neck and paralysis of the left sixth and seventh cranial nerves and of the right upper extremity. The right lower extremity was in a splint, so it was not known whether it was paralyzed or not. Kernig's sign was positive. The spinal fluid showed over 400 cells and the culture showed *Staphylococcus pyogenes*. Five cubic centimeters of Pregl's solution of iodine was injected into each carotid artery. The next day the patient's temperature went down to about 101 and she seemed a little better. That day she was given 10 cc. of the iodine intravenously. A lumbar puncture showed a reduction in the cell count and the temperature dropped somewhat. The second day after the first injection the intracarotid injection of Pregl's solution of iodine was repeated. She had had a transfusion; fluids, of course, were being forced and draining by lumbar puncture was being done daily. By the third day she was definitely better and was conscious. The temperature went down to between 100 and 101 and by the fourth day the spinal fluid cell count was 30. Another injection of Pregl's solution of iodine was given. The patient progressed definitely and by the time two weeks had elapsed all signs of meningeal irritation had disappeared, with clear spinal fluid, except the paralysis of the cranial nerve, which was probably due to basal meningitis at the exit of the nerves on the brain stem.

In this connection I may also briefly record the recovery of a patient having severe fulminating meningococcus meningitis; the recovery was probably due in part at least to the intracarotid and intracisternal injection of polyvalent antimeningococcus serum:

A boy, aged 11 years, had an extremely severe and fulminating infection and a very cloudy spinal fluid about forty-eight hours after the onset of symptoms, showing approximately 11,500 pus cells per cubic millimeter of fluid with

numerous extracelluiar meningococci. The intravenous injection of 50 cc. of an antimeningococcus serum along with two daily spinal drainages and the intraspinal injection of from 12 to 26 cc. of serum for four days were without appreciable effect, the spinal fluid becoming so turbid as to produce partial spinal block along with delirium and an early comatose state. At this time 10 cc. of the same antimeningococcus serum was given into each common carotid artery along with drainage of the cisterna magna and the intracisternal injection of 3.5 cc. of serum. These treatments were repeated three more times at daily intervals plus two extra spinal drainages each day. Recovery occurred with partial deafness on the left side and it was our impression that the intracarotid and intracisternal treatments contributed in a material manner to this happy outcome, especially since encouraging clinical improvement associated with a sharp reduction of pus cells in the cerebrospinal fluid followed within eight hours after the first treatment.

I believe it may be stated, therefore, that, while the intracarotid route of medication has not solved the treatment of septic meningitis, yet it has proved a safe and clinically applicable procedure offering some hope and advantages over ordinary intraspinal methods of treatment. When combined with cisternal or spinal drainage and medication, it appears to bring antibacterial agents into more widespread and intimate contact with the infected meninges than is possible by intraspinal medication alone. It is therefore an improvement in the route of medication, although ultimate success must await the production of more therapeutically active immune serums and specific chemotherapeutic substances than are available at present. I am confident that, if money and interested workers are available, chemotherapeutic research will ultimately discover chemical agents capable of specifically destroying pneumococci and streptococci in the tissues as efficiently as arsphenamine and its congeners act in the destruction of *Spirochaeta pallida*. At the present time the dyes, such as gentian violet and acriflavine and such chemical agents as optochin hydrochloride, iodine and mercurial compounds are but hopeful indications of what may follow the results of persistent and well organized chemotherapeutic research, which I believe constitutes one of our main hopes in the future of conquering dangerous bacterial infections.

In streptococcus and pneumococcus meningitis and cerebral abscesses secondary to primary infections of the nasal accessory sinuses and mastoid cells, the problem of prompt and adequate surgical drainage still remains of paramount importance, as there are not available at present either immune serums or chemotherapeutic agents capable of disinfecting such areas by intracarotid or intravenous routes of administration.

It is true that intracarotid injections are major procedures and that consequently one naturally hesitates to resort to them; but if there is any lesson that should have been learned by this time it is that methods of treatment of acute, diffuse purulent pneumococcus and streptococcus meningitis by ordinary intravenous and intraspinal medication are usually hopeless procedures. With intracarotid injections there is nothing to lose and possibly something to be gained when combined with prompt and radical methods for surgical drainage.

So many cases of otitic and nasal sinus meningitis begin with signs and symptoms of localized meningitis that I well understand the inevitable delay in instituting intracarotid therapy because of the hope that the infection will remain localized with a much more hopeful prognosis. But there should be no undue delay in examination of the cerebrospinal fluid, since the slow and careful removal of from 3 to 5 cc., ample for thorough examination, is apparently without harm in the way either of spreading a localizing meningitis or of favoring the localization of bacteria in the meninges from the blood stream. And whenever the fluid contains enough cells to render it even very slightly cloudy, along with positive cultures, it is a practical certainty that the meningeal infection is spreading and that radical measures alone offer any hope of successfully combating it. One of the most important lessons learned from our animal experiments has been the necessity for early treatment, since we have not been able to save a single animal in which the infection has been allowed to reach the third day, when the signs and symptoms of meningitis were extreme and associated with purulent cerebrospinal fluids.

So far as the specific treatment of type I pneumococcus meningitis is concerned, I advise the injection of 10 cc. of Felton's concentrated antipneumococcus serum reinforced with 0.5 cc. of 1 : 100 optochin hydrochloride into each common carotid artery. Immediately afterward, a cisternal puncture should be made with thorough drainage of fluid and the slow intracisternal injection of from 3 to 5 cc. of the mixture. Or if cisternal drainage cannot be done, a thorough spinal drainage may be made followed by the intraspinal injection of from 10 to 20 cc. of the serum-optochin mixture. Eight hours later another spinal drainage may be made, followed by another eight hours later. This covers the treatment for twenty-four hours and should be repeated daily for at least two to five or more days regardless of the clinical improvement of the patient. It is important to put guide ligatures of silk around the arteries at the time of their exposure, to facilitate the subsequent injections; in this connection I may mention that Dr. Spencer Kauffman has devised a successful little instrument for facilitating these subsequent injections, which may be given daily over a week or two with but little trouble and annoyance to the patient.

In type II pneumococcus meningitis the same plan of treatment may be followed except that the dose of serum injected into each artery is raised to 15 cc. and in type III infections to 20 cc., since the serum contains much less antibody for these types. I have had no experience with group IV infections, but since the serum has not been without some benefit in the treatment of group IV pneumonias, despite the absence of antibody and probably because of nonspecific protein effects, it may be worth trying in the 10 cc. dosage.

In streptococcus meningitis the same plan of treatment may be followed except that a scarlet fever antitoxin alone is injected intracarotidally and intracisternally or intraspinally. It is also necessary to conduct blood cultures at frequent intervals and especially if lateral sinus thrombosis is suspected or known to be present. In septicemia due to hemolytic streptococci, I have also used scarlet fever antitoxin by intravenous or intramuscular injection with more success than I have experienced heretofore with ordinary polyvalent antistreptococcus serum.

If serum cannot be employed, one may inject 10 cc. of 0.5 per cent solution of neutral acriflavine or 10 cc. of concentrated Pregl's solution of iodine into each common carotid artery followed by cisternal or spinal drainage. But I do not recommend the intracisternal or intraspinal injection of these agents, as the results of our animal experiments with them have met with no success. The drainages, however, should be repeated in eight hours and again eight hours later; this procedure finishes the program for twenty-four hours and

should be repeated daily for at least three to five or more days.

In staphylococcus meningitis, Pregl's solution of iodine may be employed in the same manner that was used with success by Dr. Crawford, as previously described, or one may employ neutral acriflavine as described.

Finally, it would appear that, in severe meningococcus meningitis resistant to ordinary intravenous and intraspinal treatment with antimeningococcus serum, the injection of 10 cc. of serum into each common carotid artery, followed by cisternal drainage and the injection of from 10 to 30 cc., may be worth while. Here again it would appear advisable to drain at eight hour intervals and to repeat the serum injections at daily intervals.

1818 Lombard Street.

ADDISON-BIERMER'S ANEMIA (PERNICIOUS ANEMIA)

REPORT OF CASE SHOWING ALLERGIC-LIKE PHENOMENA TO LIVER EXTRACT

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Our reason for reporting this case is the fact that although the patient reacted to liver extract with phenomena hitherto not observed so far as we can determine, he reacted favorably to beef-cooked liver. An explanation that seems plausible is offered for these phenomena.

Before presenting the case we wish to repeat [1] that it seems to us that the name "pernicious anemia" is today not a justifiable one for the disease to which it refers. The liver treatment of Minot and Murphy in this condition is so efficacious and produces such absolute relief of the object symptoms and improvement of the hematologic manifestations that "pernicious" is no longer descriptive. We feel that the name "Addison-Biermer's anemia," in recognition of the English and German clinicians, respectively, who so vividly and accurately described the clinical picture of this disease, is very appropriate. Schilling,[2] feeling likewise that the name pernicious anemia is unsuitable, has proposed the term "hyperchromic megaloblastic anemia" on the basis that the hematologic abnormal conditions are those of megaloblasts and a hyperchrome state of the red blood cells. The Schilling name does not, however, correspond to actual clinical observations, although it does describe the main pathologic condition of the blood. Clinically it is known that cases are encountered in which no megaloblasts are found in the peripheral blood although they are invariably present in the bone marrow. This is likewise true of hyperchromasia. Whereas in the majority of cases polychromasia is present, hyperchromasia is often absent.

REPORT OF CASE

J. K., aged 58 years, married, with no children, seen in March, 1924, complained of indefinite gastric symptoms; but a thorough gastro-intestinal roentgen examination was negative. The contents of the stomach, however, showed an absence of free acid and a low total. No lactic acid was present. There were no clinical evidences of anemia, and the gastric symptoms were attributed to unexplained achlorhydria. Four years later, following a period of well being, the patient returned, presenting the following picture:

Feb. 11, 1928, his chief complaints were marked weakness, inability to work, depression, and a severe pain in the stomach. The patient's hair had become almost white and his face was waxy in appearance, apparently a hemic pallor. At the physical examination, a systolic murmur was heard over the apex. The blood pressure was 120 systolic and 80 diastolic. The spleen was enlarged. The panniculus adiposis was well retained. Abdominal and knee reflexes were absent. The weight was 107 pounds (49 Kg.).

Examination of the blood showed: hemoglobin, 50 per cent; red blood cells, 2,610,000; color index, 0.9; segmented polymorphonuclears, 60 per cent; lymphocytes, 26 per cent; myelocytes, 3 per cent; monocytes, 10 per cent; transitional cells, 1 per cent.

The gastric contents were examined and showed an absence of free hydrochloric acid, total 0.15, lactic acid negative. A microscopic examination was negative. The serum was dark yellow; bilirubin, 0.9; icterus index, 6. The blood picture was, of course, practically that of Addison-Biermer's anemia except for the fact that the color index was below 1. The blood Wassermann reaction was negative.

Because of the pain in the epigastrium and the patient's other gastric symptoms a second roentgen examination of the gastro-intestinal tract was made; it proved entirely negative. A diagnosis of Addison-Biermer's anemia was made.

Treatment consisted of giving 15 drops of diluted hydrochloric acid in half a glass of cold water with meals to be composed of a regulated Minot-Murphy diet plus two vials of liver extract No. 343, three times a day.

February 22, the patient again came into the office complaining of gastric pain in the stomach. His blood picture, however, had somewhat improved, although it was still atypical. The number of red blood cells had risen to 3,250,000, the hemoglobin was 60 per cent and the color index was 0.8. No increase in the reticulated cells had occurred. The platelets were less than normal. Macrocytosis was present. A roentgen examination was negative. The treatment with liver extract was continued.

March 10, the patient appeared to be much stronger and in better spirits. The pain in the epigastrium was less marked. The blood examination showed: hemoglobin, 55 per cent; red blood cells, 3,270,000; color index, 0.84. Reticulated cells were greatly diminished. Marked anisocytosis and poikilocytosis were present. The treatment was continued.

March 31, the gastric symptoms were markedly improved, but there was now a generalized itching and redness over the body. Erythematous areas in the form of wheals were scattered over the skin. The blood examination showed: hemoglobin, 65 per cent; red blood cells, 4,390,000; eosinophils, 16 per cent; reticulated cells, 2 in the entire high power field; platelets still below normal, namely, 62,130. The treatment was continued.

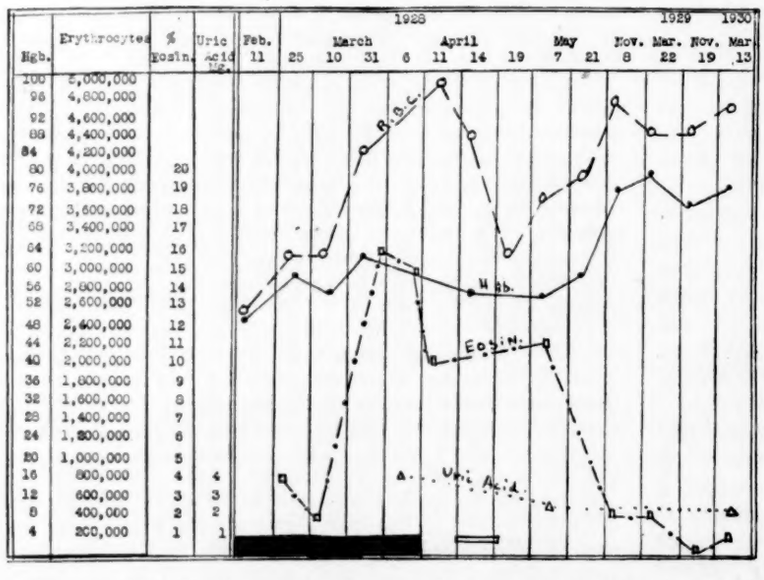
April 6, the patient reported that two days previous he had been kept awake during the night because of severe pain in the right groin, radiating down to the kidney region and right testicle. The pain indicated renal colic. There was slight puffiness of the lower eyelids. There were areas of swelling resembling the skin lesion of erythema nodosum and pigmentosa on the right leg, and the back of the chest showed diffuse erythematous lesions as well as bullous lesions. The abdomen was very tender over the region of the right kidney. The right knee was very painful. Urinalysis revealed the presence of many uric acid crystals, a few red blood cells and occasional hyaline casts. Chemical examination of the blood showed: uric acid 4.2 per cent mg. per hundred cubic centimeters of blood. Blood examination showed: eosinophils 15 per cent. The white blood cells were "shell-like," their nuclei being disintegrated from the rest of the shell protoplasm. On account of the increased uric acid in the blood, the uric acid crystals in the urine and the skin rash, the liver extract was withdrawn from the patient's diet and he was allowed to partake of cooked liver only.

1. Held, I. W., and Goldbloom, A. A.: Addison-Biermer's Anemia (Pernicious Anemia), Internat. Clin. 1: 179-218 (May) 1929.
2. Schilling, V.: Klin. Wchnschr. 7: 785 (April 22) 1928.

April 10, the patient was markedly improved. The itching had markedly diminished and the pain in the right knee was only slight. On the outer surface of the upper third of the right leg there was an infiltrated, pigmented pyramid-shaped area 6 by 6 by 5 inches. On the inner aspect of the lower third of the leg there was a circumscribed area of about 3 inches and another on the posterior aspect of the left leg, 8 inches in extent. All the other erythematous areas had disappeared.

April 11, there were numerous uric acid crystals. Blood examination showed: red blood cells, 5,100,000; white blood cells, 5,600, staining well; eosinophils, 10 per cent; moderate anisocytosis and poikilocytosis. One vial of liver extract a day was prescribed in addition to a modified Minot and Murphy diet.

April 14, the erythematous areas had reappeared, although not to so intense a degree as previously and the patient again complained of generalized itching. On the posterior medial aspect of the right leg there was a tender, heart-shaped area of induration about 8 inches in diameter. The liver extract was discontinued and only cooked liver was allowed to remain in the diet. Platelets increased to 179,000.



Response of blood under liver therapy. The black rectangle indicates six vials of liver extract daily; white rectangle, one vial daily in addition to liver.

April 19, the appearance of the skin showed marked improvement and the itching had subsided. Examination of the blood showed: red blood cells, 3,250,000; platelets, total, 157,500.

May 7, the patient complained of occasional slight pain in the epigastrium but stated he had had no further pain over the region of the right kidney. Blood examination revealed: hemoglobin, 55 per cent; red blood cells, 3,800,000; color index, 0.72; white blood cells, 3,000; small lymphocytes, 27 per cent; segmented polymorphonuclears, 60 per cent; eosinophils, 11 per cent; monocytes, 1 per cent; metamyelocytes, 1 per cent. Macrocytosis and moderate poikilocytosis were present, and occasional megalocytes. The number of blood platelets totaled 152,000. The blood contained 2.8 per cent of uric acid. The icterus index was 4.

May 21, the patient complained of some itching of the right leg with swelling and edema one and a half times normal, but said he had had no pain in the limb. Pigmentation was still present. Examination of the blood showed: hemoglobin, 60 per cent; red blood cells, 4,150,000; white blood cells, 5,000; color index, 0.9.

Treatment was extended to include 10 drops of diluted hydrochloric acid three times a day with meals, a half pound of liver four times a week, calf's heart, and salads.

November 8, the patient was much improved. He reported that the pain in the epigastrium occurred very seldom. There was slight discoloration over the right leg. The gastric examination showed an absence of free hydrochloric acid. The blood count revealed: hemoglobin, 79 per cent; red blood cells, 4,750,000; color index, 0.84; white blood cells, 9,000; eosinophils, 2 per cent. The treatment was continued.

March 22, 1929, the patient reported that he had been well until two weeks ago when he experienced pain over the left axillary region. This was relieved by heat and the patient had since been well. His weight was 154 pounds (70 Kg.). The tip of the tongue was red with small blisters. The heart sounds were good and regular. Blood pressure was 140 systolic and 80 diastolic; the pulse was 72. The abdomen was normal; examination of the left axillary region was negative. Examination of the blood showed hemoglobin, 82 per cent; red blood cells, 4,500,000; color index, 0.9; white blood cells, 8,000; smear, practically normal in appearance; platelets, 175,000. Examination of the gastric contents revealed free acidity, 0; total acidity, 10.

Treatment was continued with 10 drops of diluted hydrochloric acid three times daily with meals, half a pound of liver four times a week and calf's heart.

November 19, the patient felt well and had gained 2 more pounds (1 Kg.). The blood count showed hemoglobin, 75 per cent; red blood cells, 4,500,000; white blood cells, 8,000; color index, 0.84; eosinophils, 0.5 per cent; uric acid, 1.5 per cent. The treatment was continued.

March 12, 1930, the patient reported that he had no epigastric pain, felt strong and his appetite was very good.

At neurologic examination the right middle abdominal reflexes and left cremasteric reflex were found to be present but sluggish; the biceps reflex was present. The skin reaction of the patient was tested with diluted liver extract 1:10, 1:100 and 1:1,000, made up for us by Dr. Charles Spivak. These skin tests were negative.

March 13, the blood count was: hemoglobin, 82 per cent; red blood cells, 4,750,000; white blood cells, 7,000; eosinophils, 0.5 per cent; color index, 0.86; reticulocytes, 0.3 per cent; platelets, 110,750; uric acid, 2.2 mg. per hundred cubic centimeters of blood. Examination of the gastric contents showed free acidity, 0; total acidity, 15.

COMMENT

The abnormal phenomena observed in the course of treatment of this case were actual renal colic due to the passage of excessive uric acid crystals, an urticaria and erythema nodosum with marked itching, and pain in the right knee joint. The abnormality in the chemical content of the blood was the excessive uric acid (4.2 per cent). Hematologically the extraordinary features were the disintegrated state of the white blood cells, the marked eosinophilia, a color index that remained below 1, and the fact that despite the patient's subjective improvement there was no increase in reticulocytes.

The presence of eosinophilia in the course of liver treatment has been emphasized by other authors, notably Meulengracht and Holm [3] and we have also referred to it in an earlier publication.[1]

The increase of uric acid in the blood in the course of liver treatment, although touched on by other authors, has not been emphasized except by Riddle.[4] He found that the increase of uric acid in the blood occurred, as a general rule, within the first twenty-four hours of treatment and that they fluctuated thereafter in proportion to the increase or decrease of the reticulocytes, increasing with an increase in reticulocytes and returning to normal when the reticulocytes returned to normal.

3. Meulengracht, E., and Holm, S.: Eosinophilia and Liver Diet, Ugesk. f. læger **92**: 7 (Jan. 2) 1930.
4. Riddle, M. C.: Endogenous Uric Acid Metabolism, J. Clin. Med. **1**: 69 (Dec.) 1929.

Riddle considered the increase of uric acid to be due to an association between the increased activity of the hematopoietic tissues during early remission and increased endogenous uric acid metabolism. He bases this conclusion on the fact that there is an orderly manner in which the uric acid metabolism rises and falls with the rise and fall in the number of reticulocytes. The sequence of the appearance of an increased amount of uric acid first in the blood, then in the urine, and finally the appearance of an increased number of reticulocytes in the blood strengthens the opinion of Riddle that the increased uric acid metabolism is a physiologic expression of the rapid maturation of red cells. The increased uric acid metabolism during early remission is endogenous in origin and is not accompanied by any abnormalities in the general nitrogen metabolism. It is due to the destruction of large numbers of red blood cell nuclei which accompanies the rapid maturation of red blood cells and to an increase in general nuclear metabolism throughout the body.

Our case, regarding the uric acid increase, differs from the cases observed by Riddle in that there was no corresponding increase in reticulocytes and in that the increase in uric acid was accompanied by renal colic, skin rash and joint symptoms, which persisted as long as liver extract was given but disappeared when it was withdrawn from the diet and cooked liver alone given. Another characteristic of our case was that hematologically there was evidence of considerable destruction of the white cells, which likewise ceased when the liver extract was discontinued.

We are inclined to believe that the increase of uric acid in this case was due to two factors: (1) the unusually rapid digestion and assimilation of the nuclear proteins in the liver extract; (2) excessive destruction of white blood cells.

Liver extract in contradistinction to cooked liver is quickly digested and assimilated. The amino-acids are taken up rapidly by the liver and consequently a quantity of uric acid much larger than usual is given to the blood. The threshold for uric acid in the blood is limited. Therefore the excess passes quickly to the kidneys, to be deposited in the tubules in the form of large crystals that give rise to renal colic, itching of the skin, and even to rash. In the case reported, the rapid conversion by the liver of the nuclear proteins in the liver extract into uric acid brought about a temporary gouty diathesis. We cannot say that the patient was primarily sensitive to nuclear proteins because when cooked liver and other foods rich in nuclear proteins such as cooked sweetbreads, brain and heart constituted the diet, he had no symptoms. When liver and other organs rich in nuclear proteins are taken in a cooked form, the process of digestion and assimilation is slow. Hence the amino-acids reach the liver gradually and in small quantities so that the process of formation of uric acid in the liver and its passage from the liver to the blood is slow and unaccompanied by untoward symptoms.

The other factor that seems to have played a rôle in the symptoms of this case due to excessive uric acid was the disintegrated state of the white blood cells. It is known that even in extreme leukocytosis there may be a transient increase of uric acid in the blood. When immature white cells are present in the blood, as in leukemia, there is a marked increase in the uric acid that often results in itching of the skin, renal colic and even joint symptoms. It is not possible to explain why liver extract, instead of influencing the maturation of red blood cells, had a destructive effect on the white cells in this case. It is possible that allergy played a rôle, since a skin rash and eosinophilia were marked symptoms. Against allergy, however, speak the facts that the abnormal phenomena did not manifest themselves until the treatment with liver extract had been carried out for one month and that when a test for the patient's sensitiveness to liver extract was made, no skin reaction resulted. That the phenomena were not due to one particular brand of liver extract is proved by the fact that when other brands of liver extract were given the patient reacted similarly. We must therefore conclude that allergy alone could not explain the unusual phenomena in this case.

SUMMARY

1. A patient having Addison-Biermer's anemia developed unusual phenomena in the course of treatment with liver extract.

2. Although the phenomena greatly resembled allergic manifestations, we are convinced that allergy cannot be regarded as the sole cause.

3. Our explanation is that the amino-acid in the liver extract caused a rapid increase in the uric acid in the blood, which in turn caused the unusual phenomena.

2 East Ninety-Fifth Street.

HYPERINSULINISM FROM B-CELL ADENOMA OF THE PANCREAS

OPERATION AND CURE *

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The clinical picture of insulin shock from overdosage (hyperinsulinism) has become quite generally known. Hypoglycemia in diabetes from continued daily overdosage of insulin is described by John.[1] There have been described by Harris,[2] Pribram [3] and Cammidge [4] a variety of clinical syndromes in which there is an associated spontaneous hypoglycemia. This has been considered to result from hyperinsulinism, although failure of hepatic glycogenolysis is also a hypothetic cause for hypoglycemia. Hyperinsulinism as a physiologic abnormality is a logical corollary to the fact that insulin, the active hormone which stimulates the oxidation of carbohydrates, is diminished in diabetes. The analogy to the known plus and minus quantitative alterations of other endocrine secretions is exact. Although adenomas of island tissue have been found at autopsy, and in some instances in which the clinical observations included a hypoglycemia, it was not until quite recently that any hypoglycemic state was definitely proved to result from hyperplasia of the insulin-forming tissue. The case of Wilder, Allan, Power and Robertson [5] established the clinical entity of spontaneous hyperinsulinism, and cases have since been reported having similar clinical syndromes, also associated with

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1. John, H. J.: J. Metab. Research **1**: 489-495 (April) 1922.
2. Harris, Seale: Hyperinsulinism and Dysinsulinism, J. A. M. A. **83**: 729-733 (Sept. 6) 1924.
3. Pribram, Ernst: Chronic Glycopenia, J. A M. A. **90**: 2001-2002 (June 23) 1928.
4. Cammidge: Practitioner **119**: 102 (Aug.) 1927.
5. Wilder, R. M.; Allan, F. N.; Power, M. H, and Robertson, H. E.: Carcinoma of the Islands of the Pancreas, J. A. M. A. **89**: 348-355 (July 30) 1927.

hyperplasia of islet tissue (Thalhimer and Murphy,[6] and McClenahan and Norris [7]). Howland, Campbell, Maltby and Robinson [8] report the surgical removal of an adenoma of islet tissue with clinical cure. The Finneys [9] and Allan [10] report cases in which partial extirpation of the pancreas was done for hypoglycemia. General hypertrophy of the islands of Langerhans may occur, as was shown in the case reported by Gray and Feemster.[11] The hyperplasia in their infant subject was compensatory to its mother's diabetes.

We wish to add to the literature the following case in which a syndrome of spontaneous hypoglycemia, coma and convulsions was cured by the operative removal from the pancreas of an adenoma of islet tissue showing chiefly B-cells.

REPORT OF CASE

M. F., a youth, aged 19, entered Barnes Hospital, Jan. 4, 1930, in the private neurologic service of Dr. Carr. He came for examination because of convulsive attacks previously diagnosed as epilepsy. He complained of "spells of unconsciousness" in which his behavior was abnormal and of which he remembered nothing. The first attack had occurred one year previously. On this occasion, during his attendance at

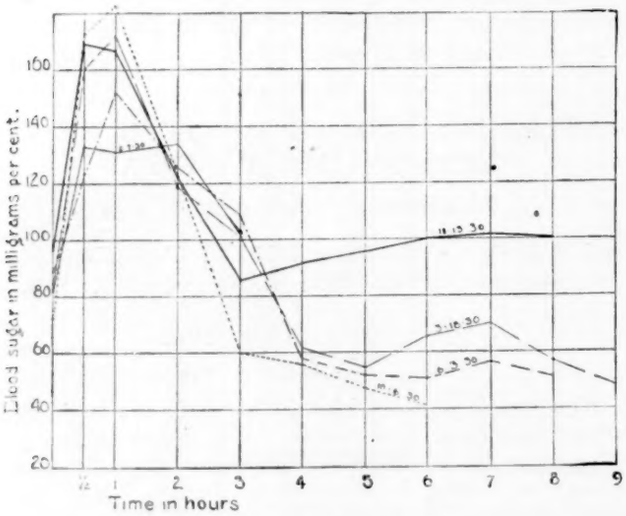

Fig. 1.—Sugar tolerance curves.

military school, he had heard the morning bugle but remembered nothing more until he later found himself being examined. Meanwhile he had dressed clumsily, had reached the mess hall, and had begun to eat so awkwardly that it was recognized that he was ill. He was taken to the school hospital, where he slept for almost thirty-six hours and completely recovered. Other attacks followed at increasingly shorter intervals and became more profound and prolonged, and at the time of admission they were occurring almost daily, usually in the late morning, and especially during times of stress from school duties.

The attacks varied in severity but were essentially the same in character. They began with a feeling of "queerness inside," a sense of hunger and anxiety. He became confused but would continue awkwardly in whatever he was doing. On one occasion, he drove for forty-five minutes over busy city streets and had no remembrance of doing so. From confusion the attacks progressed into a stupor with profuse perspiration, slight cyanosis and, at times, more or less muscular movement. Recovery would occur spontaneously after a few hours and he was then tired and ravenously hungry. Food would promptly relieve the residual drowsiness. He had observed that an attack could often be aborted by eating candy, and his mother had discovered that, if she could get him to take a few sips of sweetened tea at the onset of an attack, he would sometimes arouse sufficiently to finish the cup, and the attack would be much milder. The anamnesis did not reveal any disorder of bodily functions between the attacks or otherwise during them. In the intervals, he was by all manifestations strong and normal in his mental and bodily capacities.

Table 1.—*Sugar Tolerance Test, February 7*

Time	Blood Sugar	Urinary Sugar
A. m. fasting	81	Negative
Dextrose taken *		
30 minutes	134	Negative
60 minutes	132	Marked reduction
120 minutes	135	Moderate reduction
180 minutes	102	Slight reduction

* After the initial blood sample was taken, the patient was given 155 Gm. of dextrose in 400 cc. of water, including the juice of three oranges.

Physical examination showed that the patient was normally well developed. There was little that was abnormal. The heart was slightly enlarged and there was an impurity of the first sound. There was horizontal nystagmus on left lateral fixation of the eyes. The retinal veins were overfilled.

A roentgenogram of the chest showed a slight cardiac enlargement but was not otherwise notable. An electrocardiogram showed a slight left axis deviation.

A stereoscopic roentgenogram of the skull showed normal conditions.

The Wassermann and Kahn reactions of the blood were negative.

Urinalysis, blood counts and differential blood counts gave normal results.

Nonprotein nitrogen of the blood was 34 mg. per hundred cubic centimeters.

THE ATTACK SYNDROME

An attack occurred on the day of admission. The patient had not felt well that morning and had eaten little breakfast. He was found at 11 a. m. in a deep stupor but would arouse to answer questions briefly and would then promptly relapse. There was profuse perspiration and slight cyanosis. A neurologic examination revealed only slight diminution of the deep reflexes. The similarity of the reaction to that of an insulin hypoglycemia (shock) was noted; after blood was taken for sugar determination, 5 Gm. of dextrose was administered intravenously, and before it was completed the patient recovered, asked for food, and inquired about what was being done.

Table 2.—*Epinephrine Effect on Blood Sugar, February 11*

Time	Blood Sugar	Arterial Pressure	Pulse Rate
Fasting	77	120	80
Epinephrine administered (1 minim intravenously)			
20 minutes	84	185	110
40 minutes	63		
60 minutes	55		
105 minutes	56		

A tentative diagnosis of spontaneous hypoglycemia from hyperinsulinism was made. The blood taken during the attack was later reported to have 44 mg. of sugar per hundred cubic centimeters. Other examinations included the sugar tolerance observations given in the tables. The liver function determined by the phenoltetraiodophthalein method was normal. The amylase index of the blood was 6.5, within normal variation. Fluoroscopic study of the stomach and duodenum by Dr. Larimore gave no suggestion of gross hyperplastic pancreatic disease. The sugar tolerance was studied (table 1, fig. 1); also the blood sugar response to epinephrine (table 2).

6. Thalhimer, William; and Murphy, F. D.: Carcinoma of the Islands of the Pancreas, J. A. M. A. **91**: 89-91 (July 14) 1928.
7. McClenahan and Norris: Am. J. M. Sc. **177**: 93-97 (Jan.) 1929.
8. Howland, Goldwin; Campbell, W. R.; Maltby, E. J., and Robinson, W. L.: Dysinsulinism, J. A. M. A. **93**: 674-679 (Aug. 31) 1929.
9. Finney, J. M. T, and Finney, J. M. T., Jr.: Ann. Surg. **88**: 584-592 (Sept.) 1928.
10. Allan, F. N.: Hyperinsulinism, Arch. Int. Med. **44**: 65-70 (July) 1929.
11. Gray, S. H., and Feemster, L. C.: Compensatory Hypertrophy and Hyperplasia of the Islands of Langerhans in Pancreas of Child Born of Diabetic Mother, Arch. Path. & Lab. Med. **1**: 348-355 (March) 1926.

The patient left the hospital with the diagnosis of spontaneous hypoglycemia. A diet rich in carbohydrates with intermediate feedings was prescribed, and until fall he had only infrequent mild attacks, which could be traced to some dietetic inadequacy. He was seen, March 18, and studies of the blood sugar and of the metabolic rate were made (table 3, fig. 1). The rise of the respiratory quotient above unity indicates some conversion of carbohydrate into fat, as is an essentially normal response to the ingestion of dextrose. Carbohydrate consumption persisted throughout the observation even with the low blood sugar.

TABLE 3.—*Analysis of Progressive Changes in Blood Sugar, Heat and Respiratory Quotient During a Dextrose Tolerance Test, March 18*

Time	Metabolic Rate, per Cent	Respiratory Quotient	Calories per Hour	Calories Carbohydrate	Percentage Carbohydrate	Grams Carbohydrate per Hour	Calories Fat	Percentage Fat	Calories Protein	Percentage of Protein*	Blood Sugar
7:05	— 4	0.82	67.1	24.2	36	5.8	33.0	49	9.9	15	81
7:30	+ 1	0.85	66.9	30.7	46	7.6	26.1	39	9.9	15	..
7:45	Dextrose taken (158 Gm. in 400 cc. including the juice of 3 oranges)										
8:10	+ 7	0.91	75.5	50.9	67	12.1	13.6	18	11.3	15	161
8:50	+13	1.00	83.0	71.0	85	16.9	0.0	0	12.3	15	172
9:45	+ 2	1.02	82.0	69.9	85	16.6	0.0	0	12.3	15	119
10:45	+ 1	1.02	76.3	64.9	85	15.4	0.0	0	11.6	15	101
11:45	+ 3	1.00	67.9	57.8	85	13.5	0.0	0	10.1	15	62
12:45	— 2	0.97	71.3	60.5	85	14.4	0.0	0	10.7	15	56
1:45	— 3	0.85	69.7	31.9	46	7.6	27.2	39	10.4	15	63
2:30	— 3	0.82	68.9	24.7	36	5.9	33.7	49	10.3	15	70
2:45	— 2	0.81	71.1	22.7	32	5.4	37.8	53	10.7	15	..
3:45	+ 3	0.78	79.2	16.7	21	3.9	51.0	64	11.9	15	58
4:00	— 2	0.79	70.8	17.7	25	4.7	42.5	60	10.6	15	..
4:45	....	....	....	....	..	....	....	..	....	..	44
5:35	....	....	....	....	..	....	....	..	....	..	42
6:05	+ 2	0.75	78.1	9.4	12	2.3	56.9	73	11.7	15	..
6:35	0	0.80	75.0	21.0	28	5.0	42.8	57	11.3	15	36
7:25	— 3	0.72	73.9	0.0	0	0.0	67.0	85	11.8	15	..
7:45	....	....	....	....	..	....	....	..	....	..	38
8:45	....	....	....	....	..	....	....	..	....	..	54
9:05	+ 1	0.77	75.8	13.7	18	3.2	48.2	67	11.3	15	..
9:25	0	0.75	74.0	8.6	11	1.9	54.9	74	11.0	15	..
9:55	....	0.76	74.3	10.4	14	5.2	52.8	71	11.1	15	53
10:30	....	....	....	....	..	....	....	..	....	..	49

* Calories from protein estimated.

TABLE 4.—*Sugar Tolerance Test, June 3**

Time	Blood Sugar
A. m. fasting	86
Dextrose taken (amount as in table 1)	
30 minutes	122
60 minutes	152
120 minutes	125
150 minutes	110
240 minutes	57
300 minutes	53
360 minutes	52
400 minutes	57
440 minutes	51

* There was no urinary excretion (fig. 1).

TABLE 5.—*Sugar Tolerance Test, October 6**

Time	Blood Sugar	Urinary Sugar	Comment
A. m. fasting	72	Negative	Patient normal
Dextrose taken (amount as in table 1)			
30 minutes	172	Marked reduction	
60 minutes	183	Slight reduction	
120 minutes	123	Negative	Patient active
180 minutes	60	.....	Patient lethargic
240 minutes	56	.....	Patient unresponsive
300 minutes	48	.....	Patient in stupor
360 minutes	42	.....	Involuntary muscular movements

* Charted in figure 1.

In October, the patient reentered the hospital in the private medical service of Dr. Larimore in consultation with Dr. Carr. The patient's condition seemed little changed. He had passed the summer at a camp in Michigan and had been unrestricted in his activities with only mild symptoms at infrequent times. He, however, felt that he was becoming "soft." A sugar tolerance test, October 6, seemed to indicate a more prompt and pronounced fasting hypoglycemia (fig. 1, table 5).

The medical and surgical measures of treatment were discussed with the boy's parents, who elected to follow the medical regimen longer. The patient returned to his military academy. Within ten days he had suffered several profound attacks, the first occurring at parade, from which he was removed to the school infirmary. The weather had become quite cold and this, in connection with military drill, may have been a factor in precipitating more disturbance. He returned to his home and then reentered our service. It seemed that these attacks demonstrated at least a very narrow margin of safety, if not a definite progression in the syndrome. The patient and his parents now wished surgical help and gave their consent that the pancreas should be partially resected if no localized hyperplasia was found, which would simplify the surgical procedure.

OPERATION

Exploration of the pancreas was done, October 22, by Dr. A. O. Fisher. Just preceding the operation, the patient was given intravenously 500 cc. of 10 per cent dextrose. Morphine, 0.01 Gm., and atropine, 0.4 mg., were given hypodermically. The anesthetic consisted of nitrous oxide and oxygen with sufficient ether to produce relaxation. The field of operation was prepared with iodine and alcohol. The abdomen was entered through a left rectus incision, the fibers of the rectus muscle being separated. The liver was normal on inspection and palpation. A small segment from the free border was removed for microscopic examination. Palpation of the head of the pancreas through the foramen of Winslow revealed no abnormality in its size or consistency. To expose the body of the pancreas, the gastrocolic omentum was incised and the posterior parietal peritoneum was divided transversely, directly over the pancreas, to which it is closely attached. This exposure was facilitated by lifting up the stomach and transverse colon. By stripping off the peritoneum, it was possible to obtain a good exposure of the distal two thirds of the gland. The pancreas appeared normal in all respects and it was only while attempting the mobilization necessary for resection that there was discovered in the upper, posterior border of the gland at about its midportion, a firm, bluish mass. This tumor was elevated slightly above the surface of the pancreas and was covered by a thin, glistening membrane or capsule. After incisions had been made about the tumor, it could be lifted out of the substance of the gland, from which it readily separated. There was one rather large blood vessel supplying the tumor and numerous smaller ones, all of which were readily ligated. Practically no pancreatic tissue was removed with the tumor. On removal, it was immediately photographed; the picture gives a good idea of its size and general appearance (fig. 2). It was relatively tense and its capsule was delicate and friable.

Fig. 2.—Appearance of fresh specimen.

The defect left in the pancreas was obliterated by a continuous catgut suture, the cut edges being approximated, leaving a smooth, dry surface. The incised posterior peritoneum was approximated, covering the denuded gland completely. A small rubber dam drain was left at the site of the tumor and brought out through the gastrocolic omentum and the abdominal incision. The latter was closed in layers, in the usual manner. The patient left the table in excellent condition. At no time was there any evidence of shock and he was fully awake within an hour.

He was again given intravenously 500 cc. of 10 per cent dextrose during the afternoon following the operation, and was allowed sweetened tea by mouth. A glycosuria appeared

in a specimen twenty-four hours after operation. The blood sugar at that time was 107 mg. per hundred cubic centimeters. Glycosuria was not found again.

The postoperative course was uneventful. There was practically no nausea or vomiting. The highest temperature was 38.4 C. (101.1 F.) on the day following operation, and subsequent to this the course was afebrile. The wound healed by first intention. The sutures in the skin were removed on

Fig. 3.—Section of tumor under low power.

the sixth day and the deeper ones on the tenth. The drain was gradually shortened and was out on the sixth day. There was a moderate amount of thin serous drainage, which decreased rapidly and ceased on the twentieth day. At no time was there the slightest skin irritation, indicating that there was no leakage of pancreatic secretion. The patient was allowed up on the fourteenth day. Blood sugar determinations made daily from blood taken during the morning fasting state ranged from 107 to 92 mg. per hundred cubic centimeters. The sugar tolerance was normal (table 6).

TABLE 6.—*Sugar Tolerance After Operation, November 13* *

Time	Blood Sugar
A. m. fasting	96
Dextrose taken (amount as in table 1)	
30 minutes	170
60 minutes	168
120 minutes	122
180 minutes	85
240 minutes	92
300 minutes	96
360 minutes	100
420 minutes	102
480 minutes	100

* There was no urinary excretion.

PATHOLOGY AND HISTOLOGY

The gross specimen was an encapsulated, moderately firm tumor, very dark red and about the size of a small walnut. It is shown in figure 2. It was not weighed. Dr. R. R. Bensley reported that microscopic examination of the tissue showed that the material consisted of several fragments of the tumor, one of which was used for fresh study and the others fixed in chrome sublimate, Zenker's fluid with 2 per cent acetic acid, formalin Zenker and acetic osmic bichromate solutions, respectively.[12]

12. Zenker's solution consists of 160 Gm. of corrosive mercuric chloride and 50 Gm. of potassium dichromate dissolved in distilled water, by heat, to make 2,000 cc. Zenker's with formalin is Zenker's solution containing a diluted "solution of formaldehyde-U. S. P." (1:10). Acetic osmic bichromate solution consists of 2 cc. of 2 per cent osmic acid, 8 cc. of 2.5 per cent potassium dichromate and 1 drop of glacial acetic acid.

The fresh material on examination consisted of anastomosing columns of epithelial cells separated by a transparent, almost structureless, tissue which later proved to be hyalinized connective tissue. The cells of the columns under the oil immersion lens showed a finely granular aspect, except for the area occupied by the nucleus, which was clear. Among the granules of the cell body could be seen clear spaces like those described by Bensley and O'Leary in the cells of the islets of Langerhans. The impression that they were islet cells was confirmed by staining the fresh tissue with neutral red, in which the granules of the epithelial cells became deeply stained. The first impression gained from the study of the fresh tissue was that the tumor was composed of island cells and that the B type predominated.

Material fixed in Bensley-Zenker's fluid with 2 per cent acetic acid embedded in paraffin and sectioned and stained by Bensley's neutral gentian method, or by Bowie's stain, again showed the tumor to be composed of anastomosing columns and cords of epithelial cells separated by wide strands of hyaline connective tissue. In the wider cords the cells occupying the center had degenerated and the cavity contained much cell débris and much blood. The cells were finely granulated, as seen in the fresh, but the color of these granules, stained by Bensley's or by Bowie's stains, was a little different from that taken by either of the cells in the islets of the pancreatic lobules adherent to the tumor. Among them, however, were a few cells containing normally stained B granules. The examination of the material fixed in other solutions confirmed this conclusion since the granules in the majority of the cells consituting the tumor did not correspond in staining properties with either type of cell. Among them, however, were scattered cells of ordinary B type, and many cells contained, in addition to their regular granules, a few B granules. Accordingly, Bensley was of the opinion that the tumor was composed of a modified B type island of Langerhans' cell.

A few small fragments of pancreas were removed with the tumor. Except for a moderate amount of fibrosis, these showed little change. There was no invasion of the pancreatic tissue

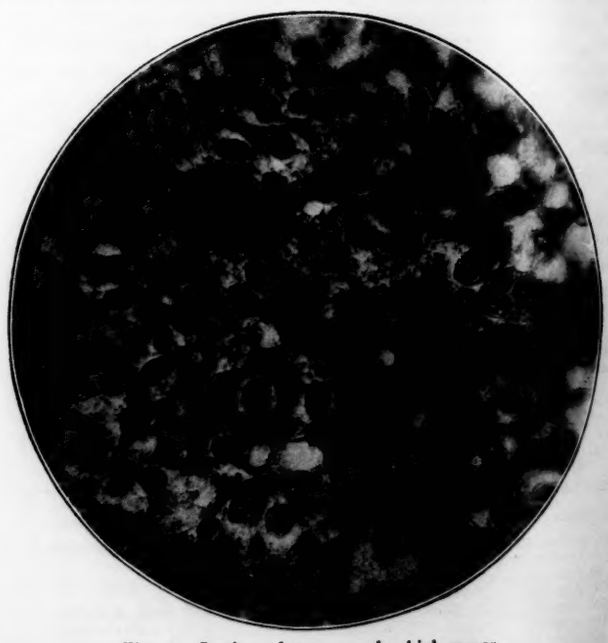

Fig. 4.—Section of tumor under high power.

by the tumor, and the islets of Langerhans' of the former were normal in cellular content and structure. There was no suppression of normal islets apparent in this tissue.

A small piece of liver showed in sections a moderate amount of albuminous degeneration, especially noted about the central vein.

COMMENT

We believe that this patient is the fourth to be operated on for spontaneous hyperinsulinism, and the

second in whom the resection of an adenoma has produced a cure.[13] The patient is the youngest on record, and this fact may have significance as regards the nature of the disorder, since the age for malignant adenomas and for hyperinsulinism of other association is in the fifth and sixth decades, of which those diseases are characteristic. The syndrome was unusually characteristic and, with the finding of the circumscribed tumor, allowed for an operative result which spectacularly fulfilled the most favorable preoperative anticipations. In spite of this clearness in retrospect, the case presented difficulties of diagnostic differentiation. An idiopathic epilepsy could be finally dismissed only by incontrovertible proof of an essential association of a spontaneous hypoglycemia. Beyond this, the origin of the hypoglycemia required determination. The presumption is great

Fig. 5.—Camera lucida drawing of high power microscopic appearance of the cells.

for a hyperinsulinism as the cause of a hypoglycemia of such degree. The relation of the liver, however, to this syndrome must be considered. Its great margin of functional reserve exists in this regard as in its other faculties, and no conclusive test has yet been devised. The clinical course of this case was by paroxysmal attacks apparently precipitated by extraneous factors, exercise, cold and inadequate food. No paroxysmal increase in the delivery of insulin was indicated clinically. Microscopic examination revealed a degenerative process in the tumor, with hyalinization and interstitial blood. This last may have occurred from manipulation, or it could have been a natural change, which would produce a paroxysmal delivery of insulin.

Accepting that the studies of the blood sugar in the fasting state and for dextrose tolerance, and that the therapeutic use of dextrose reasonably establish the occurrence of a hyperinsulinism, the problem of determining the nature of the pancreatic pathology presents insuperable difficulties. A localized malignant growth, diffuse hyperplasia of the islands or the localized noncancerous tumor, as in this case, may be found. A neurogenic hyperinsulinism is also hypothecated. The impossibility of resolving the diagnostic uncertainty of the underlying pancreatic pathologic changes and of thereby predetermining the operative procedures makes the decision for operation quite difficult, as only exploratory intervention can be done, and the prognosis of operation is uncertain. Medical treatment by overalimentation with emphasis on carbohydrates and sugar did not obviate the attacks, and there appeared to be some definite progressive increase in the symptoms. Discovery and removal of a circumscribed tumor in this case has resulted in a perfect clinical cure. The restoration of normal sugar metabolism, as demonstrated by the daily fasting blood sugar, which varied between 90 and 107 mg. per hundred cubic centimeters, and by a normal sugar tolerance curve, confirms this belief. Partial extirpation of the pancreas could not be expected to give such a complete result, and this has been shown in the cases in which such an operation has been done.

13. Dr. Harvey Cushing in his Lister Memorial Lecture, July 9, 1930 (Lancet 2: 119 [July 19], 175 [July 26] 1930), mentions a case from his clinic in which an exploratory operation on a patient with recurring attacks of hypoglycemia revealed a small removable pancreatic adenoma.

SUMMARY

A youth of 19 suffered increasingly of attacks that were similar to the syndrome resulting from an overdose of insulin. They were relieved by the ingestion or administration of dextrose. The increasing severity of the attacks justified exploration and caused the patient and his parents to accept surgical measures. A localized tumor of the pancreas was found and removed. It showed chiefly B-cells. The postoperative recovery was prompt and uneventful and the clinical cure was complete and was confirmed by studies of the blood sugar.

THE SIGNIFICANCE OF PRESENT ENTRANCE REQUIREMENTS *

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There are only two main reasons for entrance requirements: (*a*) to provide the student with adequate preparation, both scientific and "cultural," in order to enable him to profit best from his medical instruction, and (*b*) to provide the medical schools with students of adequate intelligence and to keep out those who are intellectually weak and likely to fail. The present entrance requirements date from a financial catastrophe in 1888 and are due to two persons, Miss Mary E. Garrett and Dr. William H. Welch. Because of the suspension of dividends by the Baltimore and Ohio Railroad in 1888 and the loss of endowment revenue, the Johns Hopkins University could not start its school of medicine. However, in 1893, Miss Mary E. Garrett made the opening possible by contributing $300,000 on the understanding that only those who were already graduates in arts or who had an equivalent training should be received as candidates for the degree of doctor of medicine. Most of the medical schools in the country received students with very slight examination, and even the foremost required nothing like the conditions of a baccalaureate degree. But it was not considered that a baccalaureate degree would be by itself a sufficient evidence of preliminary knowledge. It was therefore required that all such candidates should have pursued courses of instruction that included chemistry, physics and biology, and they were to have sufficient knowledge of French and German, at least, to

* From the Duke University School of Medicine.
* Read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 16, 1931.

read the scientific papers constantly appearing in those languages.[1]

It is generally assumed that Dr. William H. Welch wrote these revolutionary entrance requirements, which have not been changed materially in forty years. The reaction of the majority of the medical educators at that time was, first, that a college degree was unnecessary for preparation for medical school and, secondly, that no school could obtain a sufficient number of students on that basis. Both of these suppositions were soon proved to be erroneous. The other medical schools in this country gradually raised their entrance requirements and finally, after 1915, as the result of Dr. Abraham Flexner's survey,[2] and of the efforts of the Council on Medical Education and of the Association of American Medical Colleges, a uniform standard of minimal entrance requirements was adopted.[3]

ADEQUATE PREPARATION

At present the minimal requirements for entrance into a grade A medical school are two years of college work (sixty semester hours), including eight semester hours of biology, twelve of chemistry, eight of physics, six of English and the remainder in electives. Less than one fifth of the schools[4] require more than this, but practically all of them give preference to candidates who have college degrees. There have been innumerable discussions of the adequacy and inadequacy of these requirements. The anatomists believe that the biologic requirement should be greatly increased. One of our faculty attempted to make a comparison of the quantity of a student's preparation in biology and his proficiency in anatomy. He was making excellent progress until he learned to his horror that one of his best students, who had been admitted as an experiment, had had no training at all in biology.[5] As a matter of fact, there is some correlation between the quality of a student's preparation in biology and his record in anatomy, but it must not be overlooked that this quality of preparation may have been an index of the student's intelligence and that the latter instead of the preparation may have explained his proficiency in anatomy. I believe that the present quantity of eight hours of biology is sufficient, provided that the quality is excellent, that one half of the work is in the laboratory and that training in comparative anatomy and embryology is included. In some universities this training can be obtained in eight semester hours; in others, from twelve to sixteen are necessary. Courses in botany, heredity and bacteriology should not be accepted for this requirement.

The biochemists stress the importance of chemical preparation, but here again it is the quality rather than the quantity that is the more valuable. The content of the chemical courses is also important, for any medical student is handicapped without a preliminary knowledge of organic chemistry, quantitative methods and the theories of physical chemistry. However, one biochemist stated that if he had to choose between a candidate trained in mathematics and one with a long chemical preparation, he would prefer the former. I myself believe that, next to brains, an adequate mathematical training is the most essential requirement. Every student should have had at least one year of college mathematics; a working knowledge of logarithms is essential and one of calculus desirable. Even with this preparation in mathematics, the requirement in chemistry should be raised to sixteen semester hours, one half of which should be laboratory work; ten semester hours should be devoted to inorganic chemistry, including short or preliminary courses in qualitative and quantitative analysis, and six semester hours to organic chemistry. Additional courses in analytic and physical chemistry are desirable.

No group of medical teachers has advocated changing the requirement in physics, but the time has come when the need for adequate preparation in this subject is more than apparent. Certainly ophthalmology, orthopedics, physiology and radiology are based on physics and practically every branch of medicine could be understood better by students who have a firm physical foundation. At least ten semester hours, one half of which should be laboratory work, are necessary.

The only language included in the standard entrance requirements is English, and judging by medical papers, including my own, additional preparation in this subject would seem advisable. However, here again it is the quality rather than the quantity which is the more important. A personal interview and a personal letter are usually more valuable guides to a candidate's ability to use the English language than is his college record in this subject. English should rank next to brains and mathematics among the essential qualifications; at least twelve semester hours should be required.

Comparison of Colleges (1893) and High Schools (1920)

Subject	Colleges (1893)				High Schools (1920)	
	Duke		Princeton		Detroit	Wisconsin
Humanities	91	(72)*	89	(66)	63	62
Science	22	(40)	21	(38)	10	14
Electives	27	(28)	30	(36)	67	64
Total	140	(140)	140	(140)	140	140

* The figures indicate semester hours; those in parentheses are for the B.S. degree.

In 1893 "a sufficient knowledge of French and German, at least, to read the scientific papers constantly appearing in those languages"[1] was highly desirable, but in 1931, practically all the foreign medical literature is quickly translated and abstracted and readily available to those who cannot read the original articles.[6] If a satisfactory reading knowledge of French or German could be acquired by college courses, there might be some reason for requiring it for admission to medical school; but unfortunately the superficial acquaintance with these languages which most medical students acquire in college is so evanescent as to be almost useless. Efforts to provide students with a workable reading knowledge of French and German are now being made by some universities, and it is possible that in the future a foreign language requirement may have some practical value. Those medical men who must read the French and German literature in the original, and there are many, will obtain this knowledge anyway. As a matter of fact, we are encouraging our students to spend at least one quarter during their medical course in Europe.

1. Gilman, D. C.: The Launching of a University, New York, Dodd, Mead & Co., 1906.
2. Flexner, Abraham: Bulls. IV and VI, Carnegie Foundation for the Advancement of Teaching, New York, 1910 and 1912; Medical Education, New York, Macmillan Company, 1925; Universities, American, English, German, New York, Oxford University Press, 1930.
3. Association of American Medical College Standards for Grade A Medical Schools, Proc. A. Am. M. Coll., March 5-7, 1925, Boston, pp. 174-182.
4. Summary of Admission Requirements of Class A Medical Schools, Bull. A. Am. M. Coll. **2**: 333-340, 1927.
5. This student had completed his work for a Ph.D. degree in physics and will obtain the required training in biology before graduation from medical school.
6. Davison, W. C.: An M.D. Degree Five Years After High School, J. A. M. A. **90**: 1812-1816 (June 2) 1928.

Four years of college work and a baccalaureate degree are often stressed because of their "cultural" value. However, there is considerable doubt about any correlation between a study of the humanities in college and the acquisition of culture. The latter is more likely to result from environment early in life. It is true that in 1893 a complete college course was necessary for a basic education, but the modern high schools now supply this need. As shown in the accompanying table, a student of today, as far as subjects and hours are concerned, can obtain nearly as "broad" an education in high school as was formerly possible in college. This is particularly true of college students who received the B.S. degree. The chief troubles with a "broad" education in our high schools, as well as in our universities, are its breadth and consequent shallowness; it cannot be compared with the narrower and deeper training of an English public school, French lycée or German gymnasium. A student cannot, of course, receive an adequate training in science in high school, and two years of college work are necessary for that purpose. As a matter of fact, a college degree at present is comparable to a college degree and four years of postgraduate study in 1893. One very real disadvantage of requiring four years of college work for admission is that experience has demonstrated that the majority of medical students who have had four years of college work and who are, therefore, 21 or 22 years of age, rarely spend more than one year in postgraduate medical training; it is conceded generally that for those who wish to practice medicine two years of additional postgraduate intern training, and for those who later are to do scientific investigative work, two years of training in the basic sciences after graduation from medical school are more valuable than the junior and senior years in college.[7]

ADEQUATE INTELLIGENCE

The second reason for entrance requirements, namely, to limit the number of medical students to those who are intelligent, is much more important than the first, which is to have only those who are adequately prepared. Although both are desirable, brains are more valuable than preliminary training; the latter only aids and abets the former and is useless without it. At present there is no royal road to the selection of these intelligent students; aptitude tests offer the best solution to the problem and all are hopeful of a fruitful outcome to the present study.[8] At present, while waiting for these results, there are three means of reducing the percentage of error in selection, as judged by failure in medical school; first, letters written by the candidate, second, confidential letters from known science teachers, and last but by no means least, a personal interview with the student.[9] One of the most valuable aids in the selection of Rhodes scholars is their required statement of their "general activities and intellectual interests at college"; and the incorporation of a similar requirement in medical school applications has been of the utmost assistance in forming an opinion of a candidate's intelligence. Usually this appraisal has been corroborated by the student's subsequent career. In spite of the opinion expressed in a recent discussion[10] that "nine tenths of the recommendations are valueless," nine tenths of the replies I have received to our rather impertinent form letter to the candidate's science teachers[11] have been very informatory. Practically every science teacher, when asked in confidence for the truth and nothing but the truth, has cooperated splendidly. Some of the typical replies are: "John Jones is a very good student," "You will make no mistake in admitting Samuel Smith," "I would not want to speak very strongly of Andrew Adams," "I cannot recommend William Wilson," and "Richard Robinson is below average." Whenever an applicant's record and letters indicate that he has shown a real interest in any one of the sciences and has been led by that interest to take additional courses or do extracurricular work in that subject, he should be given preference. The personal interview of the candidate with the committee on admission or with a regional representative[12] is the most valuable of these three tests, although it has been said that mistakes are made more often than is realized.[10] I feel sure that any errors which occur are more likely to be in favor of the medical school and against the candidate than the reverse. I know of several students who did not pass the personal interview and who have made excellent records in other medical schools but of very few who made a good impression on the admission committee and who subsequently failed. The selection of medical students based on the *quality* of their preparation, their own letters, those from their science teachers and the results of personal interviews have reduced the proportion of failures at one medical school to less than 2 per cent.[7] Their earlier method of selection based on the student's college record with preference given to those with training in an excess of the requirements resulted in 15 per cent of failures.

The method of selection just described may seem laborious and complicated, but in practice it is fairly simple. The candidate some time during the year prior to the time at which admission is desired writes for application forms; these are completed by the applicant, returned to and acknowledged by the dean's office. If the candidate's letter and his record are not impressive, a letter refusing admission is sent to him promptly; for the others, form letters[11] are sent to the three science teachers who have been named on the application. As soon as two confidential replies have been received, the application is reconsidered, and if the student is recommended a personal interview is arranged with the committee on admission if the candidate lives within 200 miles of Durham or if at a greater distance with one of the twenty-nine regional representatives.[12] The committee on admission then makes a decision and the student is notified promptly either that his application is refused or that he will be admitted the following October if he sends $50 within the next two weeks.

7. Davison, W. C.: Two Additional Years in College Versus Two More Years in Hospital, South. M. J. **23**: 851-855 (Sept.) 1930.
8. Moss, F. A.: Scholastic Aptitude Tests for Medical Students, J. A. Am. M. Coll. **6**: 1-16 (Jan.) 1931.
9. Davison, W. C.: The Selection of Medical Students, South. M. J. **20**: 955-960 (Dec.) 1927.
10. Lewis, R. C.: Methods of Admitting Medical Students, J. A. Am. M. Coll. **6**: 17-35 (Jan.) 1931.

11. Dear Professor ——.
Mr. ——, who is applying for admission to this medical school, has given your name as reference. Would you please let me know as soon as possible whether you think the candidate will be a credit to the institution from which he comes? I should appreciate your candid opinion of the applicant's ability and any other qualities about which you have first-hand information, rather than a general recommendation. A statement, without reasons, that the candidate is *good*, *bad*, or *average* will be adequate. It is the policy of this school to admit only outstanding applicants, who are not likely to fail, and by assisting us to avoid the other types you can help the students as well as this school. These replies are strictly confidential.
Yours sincerely,

12. The country has been divided into twenty-nine nonoverlapping areas of a radius of 200 miles, and one of the outstanding physicians or surgeons in each section has been asked to represent the committee on admission in order that a personal interview may be obtained with each candidate whose college record and recommendations are satisfactory. The regional representatives have cooperated to the fullest extent with the medical school, and their confidential opinions of the candidates they have interviewed have been invaluable in the selection of outstanding students and in the rejection of the others. The regional representatives have not seen the applicant's academic records and form an unbiased opinion of his intelligence and character.

SYMPTOMATIC TREATMENT FOR NARCOLEPSY *

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Encouraging results in the treatment of narcolepsy have prompted us to make a survey of the therapeutic measures that have been described, and to report our experience in the treatment of the condition. The accumulating literature would indicate that the condition is not uncommon. Some cases are not recognized because the patients do not regard the syndrome as indicative of disease. If the symptoms are pronounced, however, the condition may lead to profound embarrassment, may seriously interfere with the earning of a livelihood and may even result in serious accidents.

This condition was described by Westphal in 1877 and was recognized as a clinical entity by Gélineau in 1880, who coined the term narcolepsy.[1] It is characterized, first, by a recurring desire to sleep without apparent cause, which may be irresistible or resisted only with considerable effort, and, secondly, by a peculiar and sudden loss of muscular tonus and power during laughter and other emotional states, which may cause the patient to fall. The latter phenomenon is generally referred to as cataplexy. Aside from constituting an apparently idiopathic disease, the attacks may occur as a symptom of tumors [2] and of inflammatory conditions involving the structures surrounding the third ventricle of the brain. The cases to be presented here did not show objective evidence of disease of the central nervous system.

REVIEW OF LITERATURE

The experience of most observers of narcolepsy is similar to that of Gélineau, who found treatment of no avail. Although a few patients seem to have improved spontaneously,[3] most authors agree with Redlich [4] that the condition runs an essentially chronic course. Gowers [5] reported considerable benefit from the use of caffeine. Redlich [6] found that neither strychnine nor caffeine had any influence on the attacks, although the latter drug relieved the headache which preceded the periods of sleep. Barbital preparations taken before retiring served only to increase the diurnal drowsiness. This appears to have been the general experience with hypnotics, although Serejski and Frumkin [7] believed they obtained some benefit from bromides and soluble barbital. Hilpert,[8] by giving his patient phenobarbital before retiring and caffeine twice daily, reduced the frequency, depth and duration of the attacks of sleep. Henneberg [9] did not obtain benefit from the use of caffeine and thought the improvement noted in the cases reported was due to rest in bed and institutional care. Birman [10] found caffeine useful but thyroid medication without effect. Bostock [11] obtained marked improvement in four cases with the use of a mixture containing tincture of opium, strychnine and caffeine and was inclined to attribute the benefit obtained to the opium, although his reasons for this are not convincing.

Dercum,[12] in a questionable case reported in 1913, obtained good results from thyroid medication. Wenderowič [13] reported that one of his two patients was relieved of cataplexy by the use of thyroid medication, although the patient still had mild attacks of somnolence. Matzdorff,[14] on the contrary, found that although this agent had a favorable influence on the attacks of sleep, it was without effect so far as cataplexy was concerned. Janzen [15] had a similar experience in one of his cases and found a pluriglandular preparation to be even more effective than thyroid medication. Another of Janzen's patients who had attacks of sleep without cataplexy improved while taking male pluriglandular tablets, and a third patient similarly affected for thirteen years did not derive benefit from caffeine or thyroid and other glandular preparations. Weech [16] described a typical case, that of a Negro child of 8 years who obtained marked relief from thyroid medication. The child had a low basal metabolic rate and proved to be quite tolerant of the drug. Redlich [4] said that he had not seen any particular benefit from either thyroid medication or the application of roentgen rays to the region of the sella turcica. Brock [17] did not observe any particular benefit from the thyroid medication, caffeine or solution of pituitary, whereas Pearce's [18] patient, although uninfluenced by thyroid medication, improved somewhat after rest in bed. One of Rosenthal's [3] patients who had a low basal metabolic rate was not only unrelieved by thyroid medication but proved to be hypersensitive to the drug. It had no effect on one of Levin's [19] patients who not only had a low basal metabolic rate but who presented some clinical evidence of myxedema. Another patient, not regarded by Levin as having true narcoplexy because of the absence of cataplexy, improved somewhat on thyroid medication. Ratner [20] reported that one of his patients was free of cataplexy and his attacks of sleep were less frequent after he had taken pituitary substance for three weeks. He was not helped by thyroid medication. Recently Beyermann [21] published reports of four cases

* From the Section on Neurology, the Mayo Clinic.

1. Westphal, C.: II. Eigenthumlicke mit Einschlofen verbundene Anfälle, Arch. f. Psychiat. **7**: 631-635, 1877. Gélineau: De la narcolepsie, Gaz. d. hôp. **53**: 626-628 (July 8) 1880.
2. Fulton, J. P., and Bailey, Percival: Tumors in the Region of the Third Ventricle: Their Diagnosis and Relation to Pathological Sleep, J. Nerv. & Ment. Dis. **69**: 1-25 (Jan.), 145-164 (Feb.), 261-277 (March) 1929.
3. Goldflam, S.: Sur Frage der genuine Narkolepsie und ähnlichen Zustände, Deutsche Ztschr. f. Nervenh. **82**: 20-56, 1924. Kennedy, A. M.: A Note on Narcolepsy with Report of a Case, Brit. M. J. **1**: 1112-1123 (June 22) 1929. Rosenthal, Curt: Ueber die krankhaften Dissoziationszustände bei der echten Narkolepsie und dem verzögerten psychomotorischen Erwachen (Wachanfälle), Arch. f. Psychiat. **84**: 120-180 (May) 1928.
4. Redlich, Emil: Ueber Narkolepsie, Ztschr. f. d. ges. Neurol. u. Psychiat. **95**: 256-270, 1925.
5. Gowers, W. R.: The Borderland of Epilepsy, London, J. and A. Churchill, 1907.
6. Redlich, Emil: Zur Narkolepsiefrage, Monatschr. f. Psychiat. u. Neurol. **37**: 85-94, 1915.
7. Serejski, M., and Frumkin, I.: Narkolepsie und Epilepsie, Ztschr. f. d. ges. Neurol. u. Psychiat. **123**: 233-250 (Jan.) 1930.
8. Hilpert, P.: Ueber einen Fall von Narkolepsie, Klin. Wchnschr. **4**: 1553-1554 (Aug. 6) 1925.
9. Henneberg, R.: Ueber genuine Narkolepsie, Neurol. Zentralbl., 282-290 (April 1) 1916.
10. Birman, B.: Ueber Narcolepsie: Sovremennaja psichonevrologija, 1926, pp. 13-17; abstr. Zentralbl. f. d. ges. Neurol. u. Psychiat. **48**: 714, 1928.
11. Bostock, John: Idiopathic Narcolepsy, M. J. Australia **2**: 239-241 (Aug. 25) 1928.
12. Dercum, F. X.: Profound Somnolence or Narcolepsy, J. Nerv. & Ment. Dis. **40**: 185-187 (March) 1913.
13. Wenderowič, E.: Hypnolepsie ("Narkolepsia Gélineau") und ihre Behandlung, Arch. f. Psychiat. **72**: 459-472, 1924-1925.
14. Matzdorff, Paul: Ueber Narkolepsie, Deutsche Ztschr. f. Nervenh. **88**: 1-13 (Dec.) 1925.
15. Janzen, Ernst: Ueber Narkolepsie (Gélineau-Redlich), Ztschr. f. d. ges. Neurol. u. Psychiat. **104**: 800-812, 1926.
16. Weech, A. A.: Narcolepsy—A Symptom Complex: Report of a Case in a Child, Am. J. Dis. Child. **32**: 672-681 (Nov.) 1926.
17. Brock, Samuel: Idiopathic Narcolepsy, Cataplexia and Catalepsy Associated with an Unusual Hallucination: A Case Report, J. Nerv. & Ment. Dis. **68**: 583-590 (Dec.) 1928.
18. Pearce, M. G.: Narcolepsy, Texas State J. Med. **24**: 371-373 (Sept.) 1928.
19. Levin, Max: Narcolepsy (Gélineau's Syndrome) and Other Varieties of Morbid Somnolence, Arch. Neurol. & Psychiat. **22**: 1172-1200 (Dec.) 1929.
20. Ratner, Jakob: Zur Lehre der Diencephalosen, Arch. f. Psychiat. **86**: 525-538, 1928.
21. Beyermann: Ueber pathologische Schlafzustände, insbesondere narkoleptische Anfälle, in ihrem Zusammenhange mit Funktionsstörungen der Hypophyse, Ztschr. f. d. ges. Neurol. u. Psychiat. **128**: 726-750 (Oct.) 1930.

in which relief was obtained by hypophyseal preparations; in two of the cases, however, the effect of treatment on the cataplexy was not mentioned.

Lhermitte and Nicolas [22] attributed the recovery of their patient to spinal puncture, although the patient had received two injections of neoarsphenamine on the strength of a doubtfully positive Wassermann reaction of the blood. There is also a possibility that this patient had had encephalitis. These authors referred casually to another patient who recovered after spinal puncture.

Psychotherapy, although employed extensively, has been of little avail. Myers [23] stated that he achieved marked improvement in this case by reviving repressed memories under hypnosis. Missriegler [24] claimed complete cure through psychoanalysis but the favorable outcome caused Henneberg, who reviewed the paper, to doubt that the patient had narcolepsy. In Villaverde's [25] case, the patient, a boy aged 10 years, who was said to have cataplexy, was relieved by suggestion.

Because of its more favorable course, postencephalitic narcolepsy should probably be considered apart from the so-called idiopathic variety.[26] Stiefler's [27] patient, who belonged to this category, was completely relieved of his attacks of sleep and had only an occasional cataplectic seizure after receiving two intensive courses of Pregl's solution of iodine, administered intravenously. The frequency of the attacks of sleep was reduced in Kluge's [28] case while the patient was taking large doses of sodium iodide. Thyroid medication was productive of considerable temporary improvement. Hermann's [29] patient, who had ceased to have attacks of sleep, was almost completely relieved of cataplexy by strychnine. Mankowsky's [30] patient improved on tonic measures, injections of milk, and hydrotherapy.

REPORT OF CASES

Since September, 1930, we have treated successfully with ephedrine sulphate six patients consecutively who were suffering from narcolepsy. The use of this substance was suggested by the hypothesis that the cataplectic seizures might be due to inability of the suprarenal glands to deliver quickly sufficient epinephrine during periods of emotional stress. It had been noted that Chen and Schmidt [31] and Johnston [32] had commented on the occurrence of sleeplessness in certain cases following the use of ephedrine. More recently it has become common knowledge that ephedrine tends to abolish the narcotic effect of sodium *iso*amylethyl barbiturate (sodium amytal) and that as an antidote to morphine it is more valuable than caffeine.

22. Lhermitte, J., and Nicolas, M.: Narcolepsie, cataplexie et pyknolepsie, leur intrication chez un même sujet, Etude clinique, Gaz. d. hôp. **102**: 585-589 (April 17) 1929.
23. Myers, C. S.: Treatment of a Case of Narcolepsy, Lancet **1**: 491-493 (Feb. 28) 1920.
24. Missriegler, Anton: Zur Psychogenase der Narkolepsie, Fortschr. d. Sexualwiss u. Psychanalyse., 1924, pp. 217-270; abstr. Zentralbl. f. d. ges. Neurol. u. Psychiat. **39**: 365, 1924-1925.
25. de Villaverde, J. M.: Ueber einige Eigentümlichkeiten der Narkolepsie, Arch. f. Psychiat. **86**: 129-150, 1928.
26. Adie, W. J.: Idiopathic Narcolepsy: A Disease Sui Generis: With Remarks on the Mechanism of Sleep, Brain **49**: 257-306 (Sept.) 1926. Münzer, F. T.: Zur Frage der symptomatischen Narkolepsie nach Encephalitis lethargica, Monatschr. f. Psychiat. u. Neurol. **63**: 97-111, 1927.
27. Stiefler, Georg: Narkolepsie nach Enzephalitis lethargica, Wien. klin. Wchnschr. **37**: 1044-1046 (Oct. 2) 1924.
28. Kluge, Andreas: Narkolepsie oder Encephalitis? Ztschr. f. d. ges. Neurol. u. Psychiat. **110**: 415-421, 1927.
29. Hermann, G.: Affektiver Tonusverlust (Lachschlag Oppenheims) nach Encephalitis epidemica und seine Beeinflussung durch Strychnin, Med. Klin. **24**: 854-855 (June 1) 1928.
30. Mankowsky, B.: Zur Pathogenese kataplegischer Anfälle bei Narkolepsie (auf Grund eines Falles von Encephalitis epidemica), Monatschr. f. Psychiat. u. Neurol. **61**: 340-349, 1926.
31. Chen, K. K., and Schmidt, C. F.: The Action and Clinical Use of Ephedrine, J. A. M. A. **87**: 836-841 (Sept. 11) 1926.
32. Johnston, J. I., in discussion on Chen and Schmidt (footnote 31).

CASE 1.—A man, aged 20, came to the Mayo Clinic, Sept. 6, 1930, complaining of falling asleep on all occasions for the previous eighteen months. The attacks occurred from three to six times every day and came on even while he was standing or talking to friends. If the attack occurred while he was on the street, he usually had time to find something to lean against, but he had had two automobile accidents because of his infirmity. At first he slept for four or five minutes only but on some occasions recently he had slept for half an hour. His relatives said that it was impossible to arouse him at times and that he had struck them on awakening without realizing what he was doing. When he laughed or became excited, vision was dimmed momentarily, his head shook, and his entire musculature "felt relaxed."

This is the first patient to whom we gave ephedrine. While taking three-eighths grain (0.024 Gm.) three times daily he had but two attacks of sleep in twenty-four hours; when the dose was increased to three-fourths grain (0.05 Gm.) three times daily he was entirely free from the attacks. As a test of the results of medication he "worked out" with a local football team and while doing this did not have attacks of cataplexy, and, contrary to his previous experience, did not have an attack on being commended for making a clever shot during a game of pool. He also laughed heartily at a comic motion picture without mishap. Both types of symptoms recurred on withdrawal of the drug and were again relieved when medication was resumed.

The patient returned home and on October 28 wrote that, although he was continuing to take the medicine, he was sleeping poorly at night and was having "slight sleeping attacks" after meals. He also had had one attack of cataplexy. He was instructed to take three-fourths grain of the drug morning and noon and three-eighths grain at 4:30 or 5 p. m. November 29, he stated that he was relieved of "weak spells," had had no further somnolent attacks and was sleeping well at night.

CASE 2.—A boy, aged 11 years, was brought to the clinic, Sept. 22, 1930, because of attacks of irresistible sleep without apparent cause which set in gradually during the spring of 1927 and which became more and more frequent. Owing to the tendency of other members of his class to imitate his behavior when he fell asleep in school and to his poor scholastic attainments, he was in continual disfavor with his teachers. He generally slept from fifteen to thirty minutes at a time. So far as could be determined, the sleep itself was natural. During the summer of 1927 he gained weight rapidly. Early in 1928 he had attacks of weakness in which he fell to the ground on laughing or when surprised. When he was driving an automobile, laughing was followed by profound weakness of the arms so that his hands dropped from the wheel. A vigorous nudge from his father often served to abort such an attack. The condition was growing steadily worse. September 24, the patient was given ephedrine sulphate, three-eighths grain three times a day after meals. Three days later the parents and the patient stated that there had been no narcoleptic or cataplectic seizures since he had begun taking the medicine. Nocturnal sleep, however, was somewhat disturbed.

Three-eighths grain of ephedrine after breakfast and luncheon and at 4:30 p. m. daily were given. November 1, the patient still was having an occasional cataplectic attack, but the somnolence was completely relieved. There had been no further disturbance of nocturnal sleep. Progress at school, which had been poor, was now excellent. The patient was now given one-half grain (0.03 Gm.) of ephedrine three times a day, the third dose at 4:30 p. m.

November 29, the patient's mother reported that he was free from symptoms except after playing hard for several hours. On such occasions he might fall asleep on coming indoors.

CASE 3.—A woman, aged 44, entered the clinic, Oct. 6, 1930, complaining of "sleepiness and nervousness." She had noticed a tendency to fall asleep at church or at social gatherings four years before, and a year later she had begun to notice lack of initiative. For the last two and a half years she had found it necessary to take a few naps during the day and to retire

early in the evening. During the last few months she had fallen asleep while standing, on one occasion while cooking over a hot stove. She slept for an hour or two every afternoon and was awakened only with difficulty. Questioning elicited the fact that she had repeatedly experienced weakness in the knees when her tender emotions were aroused.

The patient was somewhat corpulent; the basal metabolic rate was —7 per cent. She was given ephedrine, with prompt relief. She was able to read and sew in the evening for the first time in several years, although she did fall asleep one afternoon while riding in an automobile. The dose of ephedrine was increased from three-eighths to three-fourths grain three times a day.

The patient was allowed to go home after a few days' treatment. October 23, she wrote that the somnolence had been completely relieved, that she was continuing to feel better and that her family and friends had noticed that she not only looked better but was much more active and energetic. November 28, the patient wrote that she was taking three-fourths grain of ephedrine at 10 a. m. and a cup of coffee at 4 p. m. when alone and feeling drowsy. She continued to be relieved of attacks of sleep and cataplexy.

CASE 4.—A man, aged 25, came to the clinic, Oct. 7, 1930, complaining of "sleepiness" and "nervous reactions." Five years previously, without apparent reason, he had begun to experience irresistible attacks of sleep. Almost simultaneously he began to have another sort of seizure in which his muscles "became useless" and "trembled all over." The attacks were induced by laughing, fear and similar reactions; they occurred four or five times a day and were generally followed by sleep. Sometimes when the patient was falling asleep at night and occasionally during the day when about to fall into narcoleptic sleep he became powerless and suffered from visual hallucinations for short intervals.

The patient was given increasing doses of ephedrine sulphate thrice daily after meals, beginning with three-eighths grain. The cataplexy and the hypnagogic hallucinations were completely relieved by a dosage of 1⅛ grains (0.07 Gm.) of ephedrine three times a day. The somnolence is markedly diminished but not completely relieved. Owing to the nature of his work the patient rarely retires before 2 a. m. and sleeps only six or seven hours at night.

CASE 5.—A woman, aged 57, came to the clinic, Oct. 8, 1930, for a general examination, in the course of which she said she had been sleepy or drowsy for the last ten years. Although she had never fallen asleep while standing, she had had to take several naps every day and to retire early at night. Her mother and a brother had been similarly affected, and the patient confessed to occasional weakness of her knees when she laughed. She had gained 20 pounds (9 Kg.) shortly after the onset of the trouble.

The basal metabolic rate was —12 per cent. Insomnia was produced by three-eighths grain of ephedrine three times daily. While the patient was taking three-eighths grain morning and noon, she was entirely relieved of drowsiness and was able to attend a motion picture performance in the evening without falling asleep, but continued to be somewhat wakeful during the night. The dose was further reduced to one-fourth grain (0.016 Gm.) morning and noon. Diurnal drowsiness was relieved and sleep was normal at night. November 17, we were informed that the medicine continued to be effective.

CASE 6.—A woman, aged 42, came to the clinic, Jan. 21, 1930, complaining of attacks of drowsiness which had begun at the age of 14 years; they increased in severity and frequency for a period of five years and remained at about an even level of severity for the succeeding twenty-three years. The attacks of sleeping were rather sudden in onset and were preceded by a period during which her mind seemed to be blank. She would fall asleep under conditions conducive to sleep and also when engaged in conversation, playing cards, and the like. At the age of 16 years she began to have attacks when laughing and to a less extent when angry, in which her tongue would suddenly become thick, her lower jaw would drop and she would be unable to talk. These seizures lasted one or two minutes. She said that she had nursed her three children while lying down in order to avoid falling asleep and dropping them.

The patient returned to the clinic with the same complaint, Oct. 25, 1930, and was given ephedrine sulphate, three-eighths grain three times a day after meals. October 27, she reported that she had not had attacks of cataplexy during the previous forty-eight hours or somnolent attacks the day previously. October 27, however, after a morning of hard work, she had an attack of sleeping. She believed that her rest had been somewhat disturbed during the first half of the night. She was advised to take three-fourths grain of ephedrine after breakfast and after the noonday meal. November 3, she stated that she was completely relieved of attacks of sleep and of cataplexy but that she felt somnolent in the evening. The dose was accordingly adjusted so that she received three-fourths grain after breakfast and after the noonday meal and three-eighths grain at 5 p. m. November 19, she reported that she was completely relieved of somnolent and cataplectic attacks.

COMMENT

The reports concerning thyroid medication in the treatment of narcolepsy have been conflicting and the prolonged use of this substance would appear unwarranted for nonmyxedematous subjects. Bostock seems to have obtained consistently good results with opium, strychnine and caffeine, but the use of opium is obviously open to serious objections. Ratner and Beyermann have used pituitary substance with substantial relief of symptoms; this treatment appears worthy of further study.

Our results with ephedrine in six consecutive cases indicate that most, if not all, cases will respond favorably to this agent. After the publication of our preliminary report,[33] Collins [34] became interested in this problem. He has treated two patients with ephedrine, one a boy aged 14 years who had had the trouble for four years, and the other a man aged 34 who had had the trouble for twelve years. Both patients are now free from somnolent and cataplectic attacks. After the symptoms had been controlled in our cases 2 and 6, both patients suffered from attacks of sleep after the expenditure of much energy. Increase in the dosage solved this problem for the patient in case 6 and will be tried for the other patient. It has been found desirable to start with small doses and gradually to increase them. The influence of insomnia in making it difficult to control the syndrome seems to have been indicated by the response in case 1 to reduction and rearrangement of dosage. Since ephedrine is productive of insomnia during the early hours of the night if given in relatively large doses late in the day, it has been our practice of late to prescribe relatively small doses of the drug at 4:30 or 5 p. m. Habitual loss of sleep may make it impossible to control completely the syndrome by a drug such as ephedrine because of the necessity of increasing the dosage to the point of inducing unpleasant and undesirable effects.

Although relief is readily afforded in mild cases, severe cases may require considerable adjustment of the dosage in order to obtain optimal results and to avoid the production of untoward symptoms.

SUMMARY

Six patients suffering from narcolepsy were treated with ephedrine sulphate. Five are completely relieved of the essential symptoms of irresistible desire to sleep without apparent cause and of cataplexy. The sixth patient is relieved of cataplexy and hypnagogic hallucinations, and somnolent tendencies are markedly improved.

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34. Collins, H. A.: Personal communication to the authors.

ARTHUS PHENOMENON IN A SYPHILITIC CHILD*

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In 1903, Arthus[1] described a condition occurring in rabbits injected at successive weekly intervals with horse serum which has since been known as the Arthus phenomenon. He found that a single injection of horse serum in the rabbit did not produce injury, early or late, whether the injection was given subcutaneously, intraperitoneally or intravenously. Under these conditions, the horse serum is not toxic to the rabbit. If the injection is repeated at intervals of several days, a characteristic succession of changes are produced, following even a small dose. Under these conditions, the horse serum has acquired a toxicity for the rabbit. Arthus states that in the simplest form the experiment consists of subcutaneous injections of 5 cc. of horse serum at six day intervals. After the third injection, a local reaction is produced, becoming more intense with each injection and varying from a slight infiltration persisting two or three days, to greater induration, edema and thickening, lasting for several weeks. After the seventh or eighth injection, the area becomes aseptically gangrenous and cicatrizes with difficulty. The injections are not made at the same site. In other words, he explains, some general change occurs in the body with apparently an increase of antibodies, so that the seventh or eighth injection of antigen is overwhelmed by antibody with the production of gangrene at the site of the last injection. These changes occur at earlier injections in some animals and later in others. The Arthus phenomenon is an immunity reaction. It is not the result of the pressure of the injection or the volume of the serum. Arthus demonstrated that the reaction may be produced by the use of 1 cc. or less of serum, provided the proper time interval was observed. On the other hand, no reaction is produced even if 20, 30 or 40 cc. of serum is injected per dose or repeated daily for several days. The phenomenon was reproduced with boiled skimmed milk and was found to be specific.

In his original article, Arthus asks the question "Does man respond similarly?" His information yields the fact that some individuals develop more or less extensive infiltration and edema in the region of injection, when injected with therapeutic serum at several intervals of from eight to fifteen days. He suggests that man, like the rabbit, may exhibit the local reaction following subcutaneous injection and that the general reactions may possibly result in death following intravenous therapy. He logically recommends caution in the administration of foreign serums given at intervals but insists that it does not follow that the possibility of a reaction renders a valuable serum dangerous.

If Arthus was correct in his prediction that results like those described experimentally in rabbits might be seen in man, one should expect to find many observations to this effect in the literature, particularly since the popular use of toxin-antitoxin. It is reasonable to suppose that many individuals inoculated with toxin-antitoxin derived from horse serum might subsequently require horse serum for such conditions as scarlet fever, pneumonia, tetanus, hemorrhage, or even diphtheria itself. In such individuals there would be present to some degree, at least, the laboratory conditions of Arthus.

As a matter of fact, few reports are present in the literature, possibly because the milder reactions are overlooked or their significance is not appreciated. That these reactions are not excessively rare is indicated by the fact that two observers, Gatewood and Baldridge,[2] described six cases in 1927 from their own records. One of their cases is detailed here because it so strikingly parallels ours:

A nurse, aged 25, had received toxin-antitoxin in February, 1925. In November, 1925, she was given a small desensitizing dose of diphtheria antitoxin in one arm, and thirty minutes later an intramuscular injection of 20,000 units in the corresponding hip. There were no immediate reactions.

On the sixth day there was an acute generalized enlargement of the superficial lymph nodes.

On the seventh day the injected areas were swollen, red and tender.

On the ninth day the patient required more antitoxin and a desensitizing dose was given in the opposite arm. Thirty minutes later, 40,000 units of diphtheria antitoxin was given in the corresponding hip. There was no immediate reaction.

Three hours later the hip and arm were swollen. The areas were firm, not tender. A blanched area, 12 cm. in diameter, appeared over the swelling of the thigh and a similar area appeared over the arm. These regions were swollen, soft, red and tender.

Two days later the edema and redness spread until the whole thigh and arm were involved, now twice their normal size.

On the third day the blanched area assumed the mottled appearance of extravasated blood, and the temperature became septic.

On the fifth day incision of the left thigh yielded no frank pus although the tissue was necrotic. There was a serosanguineous discharge with fat droplets. The general adenopathy began to disappear as well as the redness and edema of the arm and thigh.

On the ninth day there was a sudden increase in the edema, redness and pain. The skin of the thigh lesion, first blanched and mottled, now became a black, dry, slightly shrunken eschar.

On the fifteenth day a red, hemorrhagic area appeared on the inner aspect of the left thigh.

On the twenty-first day there was a sudden exacerbation of the pain, redness, swelling and adenopathy, which again slowly subsided.

On the twenty-sixth day redness developed about the wound, and for the first time the discharge became purulent. Incision showed an abscess cavity extending almost from the hip to the knee on the outer aspect of the thigh. In the previous wound a mass of necrotic tissue was removed, involving subcutaneous fat, fascia lata and muscle the size of a fist. There was no bleeding from the cut surface. The left arm, which had undergone all the changes of the thigh, was later incised, yielding a thick, yellow, necrotic material. The cultures were negative.

In five other cases the reactions did not proceed so far. In some there was only blanching with some appearance of extravasated blood, but no final necrosis. Some of these results followed scarlet fever antitoxin and some diphtheria antitoxin, as in the case quoted. It was striking that the severe reactions described occurred when further injections of the horse serum were administered in individuals still showing reactions from a previous injection. They stated that neither in

* From the Sarah Morris Hospital for Children of the Michael Reese Hospital.

1. Arthus, M. M.. Compt. rend. Soc. de biol. **55**: 817, 1903.

2. Gatewood, W. E., and Baldridge, C. W.: Tissue Hypersensitiveness Following the Administration of Toxin-Antitoxin, J. A. M. A. **88**: 1068 (April 2) 1927.

their own experience nor in the literature had they found exact duplicates of the conditions they described, and they predicted that the Arthus phenomenon might logically be expected to be reported more frequently with the increased use of horse serum. The case herewith described seems to satisfy Gatewood and Baldridge's request for a duplicate.

REPORT OF CASE

L. F., a girl, aged 5 years, had received the usual three weekly injections of horse serum toxin-antitoxin in 1926 at the age of 1 year. A Schick test the following year was said to be negative.

March 27, 1930, she received 1,000 units of diphtheria antitoxin in the left buttock. Within a few hours the child developed a redness and swelling at the site, and the next day there were urticarial wheals locally, becoming scattered the following day while the local swelling subsided.

March 29, the child developed a sore throat and a temperature of 101 F. The following day the culture was reported positive for diphtheria bacilli.

March 30, she was given 15,000 units of diphtheria antitoxin in the right buttock. In three hours the buttock began to swell.

April 1 (two days), the right buttock became enormously swollen and extremely tender, and at the summit of the swelling a purpuric area appeared about 5 cm. in diameter. Smaller areas appeared about the periphery. These are the lesions described as extravasated blood by Gatewood and Baldridge. A similar area developed above the right iliac crest and another area about the size of a silver dollar (38 mm.) appeared over the popliteal space, and the right knee joint now became markedly swollen and tender. At this time there were also isolated urticarial wheals about the right buttock, right arm and right anterior abdominal wall.

April 2 (three days), the purpuric areas over the swelling coalesced to form a uniform purplish, erythematous patch covering the entire buttock. There was some induration and tenderness of the anterior abdominal wall in the right lower quadrant. The right labium was swollen.

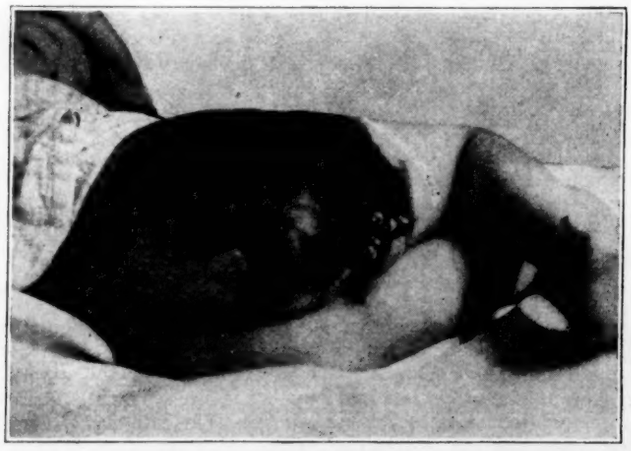

Fig. 1 (April 10).—Area of gangrene with ulceration appearing at postero-inferior portion.

April 4 (five days), the purpuric area began to assume a darker color. The swelling diminished and was less tender. The knee was also less swollen, and the nurse stated that the process looked as if it were clearing.

During this period the temperature varied from 99 to 101 F.

April 6 (seven days), the erythema over the buttock, which had been turning darker, suddenly faded and became pinkish.

April 7 (eight days), a black area, the size of a silver dollar, appeared over the buttock progressively increasing in size until the entire gluteal area became black, slightly depressed below the surrounding healthy skin, and gave a gangrenous odor. Bullae containing a turbid fluid appeared about the margin of the gluteal necrosis. The anterior abdominal wall in the right lower quadrant was still swollen and tender. The swelling and tenderness of the right knee had cleared.

April 8 (nine days), the bullae of the buttocks ruptured and a deep area of ulceration appeared at the margin, separating the necrotic tissue from the normal (figs. 1 and 2).

April 11 (twelve days), the child began to complain of extreme pain in the right lower quadrant. The swelling over this area was incised and a considerable amount of thick yellow pus was obtained, containing a gram-positive diplococcus.

April 14 (fifteen days), the cultures from the nose and throat became negative, so that permission was obtained from the health department to remove the child to the Michael

Fig. 2 (April 10).—Right lower abdominal quadrant swollen and tender. Thick pus obtained by incision the following day. The discolored swelling and ulceration about the right labium and the inner thigh may be noted. Child's expression not anxious.

Reese Hospital, where it was found that the entire right buttock and lower abdominal quadrant were draining. The slough exposed the muscles of the region, and the fascia had disappeared in the slough.

At this time the urine contained a trace of albumin and many pus cells and was alkaline in reaction. The blood count yielded 3,750,000 red cells, 60 per cent hemoglobin and 14,900 white cells, of which there were 78 per cent polymorphonuclears, 19 per cent lymphocytes and 3 per cent monocytes. The blood culture was negative. Smears of the pus were loaded with bacteria but no eosinophils.

April 16 (seventeen days), the condition was that of gangrene of the skin and fascia over the right buttock, thigh and anterior abdominal wall, with sharply demarcated sloughing areas of the right buttock, extending upward and down to the thigh.

Under ethylene anesthesia, the wound was treated by one of us (D. C. S.) as follows: Necrotic skin, fat and fascia were removed. Bridges of necrotic skin of a large oval area of gangrene were cut through. The hand was introduced below this. A large oval mass, measuring about 6 by 8 inches, was cut away by sharp dissection. This large piece of gangrenous skin with subcutaneous fat and fascia was lifted off much as a lid from a stove. When this tissue had been removed in one piece, the underlying muscles lay exposed almost entirely independent of fascia which sloughed and a large amount of which had come away in the discharge. After apposition, the muscles lay exposed much as in an anatomic dissection. The skin was undermined upward as far as the umbilicus, medially beyond the midline, and as low as the lowest portion of the popliteal space. At this point, a counter incision was made and a rubber drainage tube inserted below the skin from the lower end of the large defect in the buttock tunneling under to the lower end of the popliteal space. Inspection beneath the skin in the lower portion of the thigh showed that the muscle here also had been denuded of fascia. The fascia lata was practically all lost. The final summary was massive gangrene of the skin, subcutaneous fat and fascia of the right buttock, hip and thigh, as far as the knee joint. The gangrenous area was about 6 by 8 inches.

Wet dressings of hexylresorcinol were applied to the wound.

The laboratory examination, by Dr. Lutz, revealed acute inflammation with necrosis; grossly, a small piece of skin with some subcutaneous tissue, necrotic and firm. Two small pieces of fibrous tissue were present. Microscopic examination

revealed the presence of stratified squamous epithelium, fat and connective tissue and cross striated muscle. Throughout all fields, the tissue was markedly degenerated. The cell outlines were indistinct, with large areas highly infiltrated with leukocytes. In many fields there was actual necrosis as evidenced by complete loss of structure (fig. 3).

April 18 (nineteen days), gangrene extended to the discolored area in the right lower quadrant.

April 19 (twenty days), irrigation with surgical solution of chlorinated soda was begun. The wound began to look cleaner.

During this time the child had considerable pain and tenderness in the abdomen, back and legs, and perspired profusely. Her color was yellow and waxy.

April 21 (twenty-two days), the blood count showed 3,760,000 red cells, 60 per cent hemoglobin and 22,700 white cells, of which 68 per cent were polymorphonuclears, 24 per cent lymphocytes and 8 per cent monocytes. There were no eosinophils. The Wassermann reaction was two plus, and the Kahn reaction was four plus.

April 23 (twenty-four days), the child's appearance was increasingly waxy. Her pulse was 150, and her respiration was rapid.

April 26 (twenty-seven days), granulations began to appear over the wound. The pulse was slower, but the temperature remained around 101 F., which continued from her admittance to the hospital.

On this day 200 cc. of blood from a donor, group 1, compatible with the patient, was given into the right cephalic vein by syringe under local anesthesia. The child left the table in good condition. Within a few minutes after reaching her room, she became suddenly cyanotic.

At 12:15 p. m. the radial pulse was imperceptible.

At 12:30 she became deeply cyanotic but drank milk. After camphor in oil and caffeine injections, the pulse was perceptible and the respirations were rapid and shallow. She vomited and became unconscious.

At 12:40 the radial pulse was not felt, but the temporal pulse was obtained. Oxygen was given, and the cyanosis began to clear.

At 12:55 the child was markedly restless, tossing about in coma. Oxygen was continued, and the color became better although the pulse was still weak.

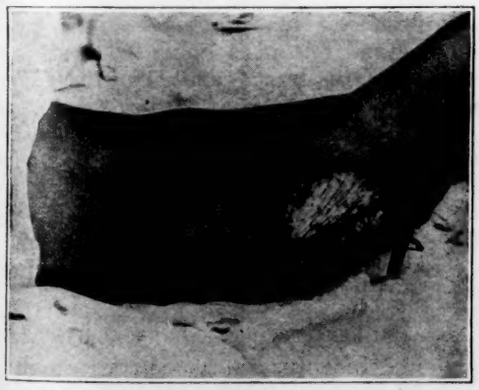

Fig. 3 (April 17).—Lateral view: extent and depth of the major lesion, drainage tube tunneling through to the popliteal space, and lesion of abdominal wall. "Muscles exposed like an anatomic dissection."

At 1 o'clock she talked somewhat irrationally, asking for dinner. She drank 2 ounces of water. Respirations were now 60 a minute, and the pulse 160.

At 1:25 she was placed in an oxygen tent, to whose temperature she seemed to react unfavorably.

At 2:21 the patient died.

During her hospital period, the respirations varied between 28 and 36 and the pulse between 110 and 140 until the transfusion. After the admittance reading of 103, the temperature remained below 101 F. The urine contained a trace of albumin but no sugar or acetone. The reaction was alkaline, and there were many pus cells.

In explanation of the positive tests to syphilitic antigen, it was learned that the father had contracted the disease during the preceding year and was under treatment, not, however, before infecting the mother. The mother offered the interesting information that the patient was especially attached to her father. She manifested no clinical signs of syphilis. Two other children in the family, aged 3 and 9 years, were not so close to their father and yielded negative Wassermann reactions in both cases, and a three plus Kahn reaction in the case of the older sister and a doubtful positive reaction in the case of the younger brother.

When the positive reactions were obtained, the patient was given the antisyphilitic treatment by mouth as a temporary measure in the face of the severe skin reactions to serum.

Fig. 4 (April 17).—Posterior view.

A Schick test performed with sheep serum toxin-antitoxin yielded a negative reaction, to be expected because of the recent administration of diphtheria antitoxin. However, the absence of any sort of reaction indicates that the child was not skin sensitive to sheep serum, despite her tremendous reaction to horse serum.

COMMENT

The evolution of the changes following the intramuscular injection of 15,000 units of diphtheria antitoxin in a child still manifesting skin reactions from inoculation with 1,000 units of the same serum three days earlier, who had received three injections of horse serum toxin-antitoxin at weekly intervals four years before, corresponds significantly with the condition described by Gatewood and Baldridge in man in 1927 and originally reported by Arthus in the rabbit in 1903. The appearance of the lesions was typical, beginning with swelling, blanching, tenderness, purpuric appearance of extravasated blood, temporary clearing followed by a purple black, depressed, insensitive eschar, sharply demarcated from the healthy skin, sloughing away with massive destruction of tissue. The necrosis followed repeated injection of horse serum at appreciable intervals. There was joint involvement, as previously reported and significantly observed in other types of serum sickness.

The case that has been reported here supports the observation that the phenomenon of Arthus is especially apt to follow injections of serum in the presence of reactions from previous injection of the same serum. It will be noted that our patient received the last antitoxin while urticarial lesions were present from a dose of antitoxin given three days before. The fact that our patient had received only the minute quantities of horse serum contained in 1 cc. of toxin-antitoxin for the first three injections illustrates the well accepted observation that minute quantities of foreign protein are highly antigenic. Clinically, this fact has been amply demonstrated in some of the severe serum reactions to scarlet fever antitoxin which resulted in the accusation of extreme toxicity against that agent. The accusers had overlooked the fact that most of the children receiving scarlet fever antitoxin had previously received horse serum in the form of toxin-antitoxin.

It seems unreasonable to claim that mere trauma or pressure of the 10 cc. volume of antitoxin used could have produced such a massive gangrene in an area so richly supplied with anastomosing blood vessels. This objection to the serologic explanation was long ago answered by Arthus, who demonstrated that as little as 1 cc. will produce these characteristic lesions if the proper interval of injection is observed, while too frequent injections of vastly greater quantities which should favor gangrene from pressure on vessels will have no such effect if the interval is too small.

The factor of a positive Wassermann reaction without clinical manifestations may be excluded from the etiology of the process from the direct standpoint because the case satisfies all the conditions of the Arthus phenomenon from etiology and pathology with characteristic changes, even to the concomittant manifestations of joint involvement. From the indirect standpoint, children with positive Wassermann tests have received diphtheria, scarlet fever and tetanus antitoxin, as well as horse serum of other types, without developing this picture. Furthermore, interesting serologic data obtained from this patient indicate that some special toxic substance reacting to horse serum was present in her blood not related to the syphilitic factor. These conclusions were controlled by using her brother and sister, both of whom had toxin-antitoxin previously and one injection of antitoxin later, and one of whom had a three plus Kahn reaction, and further by using a four plus Wassermann serum from another source. These experimental data will be published later.

It cannot be emphasized too strongly that this rare occurrence must not be interpreted as an argument against the administration of serum when indicated. Park [3] assures the timid that there are no serious accidents when serum is administered subcutaneously or intramuscularly, despite the results of skin tests following intravenous or intramuscular injections. Reactions may occur even when skin tests are negative, but these reactions are not as severe as cases with positive skin tests. He concludes that it is justifiable to give serum intravenously, regardless of the skin test, when the administration is performed slowly and stopped with the development of symptoms. Hooker [4] suggests that horse serum should not be withheld despite skin tests, but that other animals should be used to obviate the prejudice, especially the goat or other animals not used for eating, in contrast with sheep or cattle.

The circumstances surrounding the serum treatment of this patient may be questioned. The child had received toxin-antitoxin and had subsequently given a negative Schick test four years earlier. She was given a prophylactic dose of diphtheria antitoxin as a susceptible contact. The health department culture yielded diphtheria bacilli two days later while the child had fever and a sore throat without visible membrane. In the administration of the prophylactic 1,000 units, the physician in charge was unaware of the previous negative Schick test and deemed it inadvisable to withhold prophylaxis because of the health department policy. In giving the second injection, he was apparently guided by the culture, sore throat and fever. He feared ignoring these factors and gave 15,000 units because of possible criticism on the part of the family and a concurrent experience with an atypical type of diphtheria which was not responding to antitoxin as usual.

3. Park, W. H.: J. Immunol. **9**: 17 (Jan.) 1924.
4. Hooker, S. B.: J. Immunol. **9**: 7 (Jan.) 1924.

SUMMARY

1. A condition resembling the phenomenon of Arthus in animals is described in the human being.
2. This case resembles in significant detail the cases in human beings described by others.
3. An unusual state of hypersensitiveness has been produced to the initial antigen, horse serum, as well as to a group-compatible blood producing local gangrene on the one hand, and death on the other.
4. The factor of syphilitic infection is probably incidental.
5. This is no brief for the policy of withholding antitoxin when ordinarily indicated. Positive skin tests to horse serum may be disregarded, but extreme care should be exercised in administering serum in the presence of a reaction from a preceding injection of the same type of serum. In this state of extreme artificial sensitization, it is possible that the individual has become generally hypersensitive so that massive injections of foreign protein, even homologous blood, should be avoided.

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THE PREVENTION OF RICKETS IN PREMATURE INFANTS BY THE USE OF VIOSTEROL 100 D*

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DETROIT

The results of comprehensive study of vitamins during the last two decades are reflected in the more efficient methods being used at present for the control of deficiency diseases. The final word may not have been said in respect to rickets, but the investigations of Tanret, Rosenheim and Webster, Hess and Windaus, and Steenbock on the production and action of vitamin D has contributed materially to our knowledge of the etiology, prophylaxis and treatment of the disease.

The process of imparting the antirachitic factor to sterols by ultraviolet emanations from a mercury vapor lamp is too familiar to need elaboration in this report. The name viosterol was assigned by the Council on Pharmacy and Chemistry of the American Medical Association to irradiated ergosterol when adjusted to a potency of 100 times the vitamin D strength of standardized cod liver oil. Since Oct. 1, 1930, the strength of these preparations has been increased to 250 D. All the data submitted in subsequent paragraphs, however, deal with a preparation of viosterol having a potency of 100 D.

GENERAL SCOPE OF PROBLEM

This clinical study was instituted in order to determine the dosage of viosterol for the prevention of rickets in premature infants. Several investigators [1] had reported studies in animals and human beings demonstrating the production of hypercalcemia and toxic phenomena from overdosage of irradiated ergosterol. Alfred Hess,[2]

* This study was made under a grant from Parke, Davis & Company.

1. Kreitmair, H., and Moll, T.: Hypervitaminose durch grosse Dosen Vitamin D, München. med. Wchnschr. **75**: 637 (April 13) 1928. Pfannenstiel, W.: A Summary of Recent Work on Irradiated Ergosterol, Lancet **2**: 846 (Oct. 20)—1928. Harris, L. J., and Moore, Thomas: Hypervitaminosis and Vitamin Balance: Specificity of Vitamin D in Irradiated Ergosterol Poisoning; Pathology of Hypervitaminosis D, Biochem. J. **23**: 261, 1929. Klein, I. J.: Effects of Massive Doses of Irradiated Ergosterol, J. A. M. A. **92**: 621 (Feb. 23) 1929. Smith, M. I., and Elvove, E.: Action of Irradiated Ergosterol in Rabbit, Pub. Health Rep. **44**: 1245-1256 (May 24) 1929.
2. Hess, A. F.; Lewis, J. M., and Rivkin, Helen: The Status of the Therapeutics of Irradiated Ergosterol, J. A. M. A. **93**: 661 (Aug. 31) 1929.

Karelitz,[3] Sobel and Claman [4] and others had reported on the curative properties of vitamin D in rickets administered in this manner, but very little information was available regarding the prophylaxis of rickets in premature infants.

Jundell [5] prevented the development of rachitic changes in the inorganic phosphate level of the blood and in the skeletal structure in six premature infants by moderate dosage. Vogt [6] demonstrated the value of irradiated ergosterol as a prophylactic of rickets and as a preventive of physiologic loss of weight in a series of eighty premature and underweight infants. Wilkes, Follett and Marples [7] found that irradiated ergosterol is not a perfect preventive for rickets, but despite its imperfections in prophylaxis they obtained satisfactory improvement in florid rickets.

So far as can be ascertained, all the studies just described were not based on observations made with a preparation of the same potency as viosterol. The qualitative evaluation of irradiated ergosterol was then a moot point, but at the time this study was begun in March, 1929, the quantitative aspect of dosage seemed paramount.

Breast feeding of babies was followed in every possible instance, or in lieu of it complemental feeding was used if indicated, and artificial feeding was resorted to if it became necessary to wean the infant. The artificial feeding consisted of half whole milk and boiled water with the addition of 6 per cent carbohydrate. All babies receiving artificial feeding were fed according to the calory per pound of body weight and age method. Furthermore, orange juice was added to the diet at the end of the first month, cereal water during the third month, fruit pulp (apricot, prune and apple) in the fourth month, vegetables, meat broths and zwieback during the fifth month, and cereals during the sixth month for infants followed this length of time.

The calcium estimations on the blood serum were made by the Tweedy modification of the Kramer and Tisdall method. Serum phosphorus was determined by the modified Fiske and Subarrow technic.

There were fifty-three premature infants in the group studies, twenty-one of whom were not used for statistical purposes in the present report because of the lack of cooperation on the part of the parents or because of their removal from the city before a sufficient

TABLE 1.—*Increase in Weight and in Serum Calcium and Phosphorus of First Ten Premature Infants Treated With Viosterol 100 D, During Use of Minimal Doses*

Number	Name	Sex	Race	Age	Birth Weight		Duration of Treatment	Total Daily Dose of Viosterol, Drops	Weight Increase		Serum Calcium		Phosphorus		Comment
					Lbs.	Oz.			Lbs.	Oz.	Initial	Last	Initial	Last	
1	D. W.	♂	Negro	3 wk.	4	8	4 mo.	36	3	12	5.47	11.40	6.75	8.54	Whooping cough, thrush and slight diarrhea
2	R. W.	♂	White	2 mo.	2	7	4 mo.	36	4	8	6.20	10.69	4.73	6.09	Secondary anemia, diarrhea
3	M. K.	♀	White	6 wk.	4	9	3 mo.	36	4	2	9.60	11.76	6.09	7.04	Secondary anemia, diarrhea
4	W. L.	♂	Negro	4 wk.	5	0	1 mo.	36	2	11	10.60	10.90	5.44	6.21	Thymic hyperplasia
5	J. C.	♀	White	2 wk.	3	14	2 mo.	36	1	14	11.01	12.01	6.58	7.53	Under constant care
6	B. H.	♂	Negro	2 days	4	9	1 mo.	36	0	7	9.75	10.97	5.32	7.14	Constant care
7	G. N.	♀	White	2 wk	3	4	1 mo.	30	2	3	9.66	10.12	7.04	7.35	Thrush, slight diarrhea, slight secondary anemia, thymic hyperplasia
8	S. C.	♂	Negro	5 days	4	9	6 wk.	48							
9	J. D.	♀	White	3 days	3	15	2 mo.	50	0	8	10.81	12.65	6.06	6.61	Under constant care
									1	15	13.43	10.78	7.81	4.67	Constant care for first month; no care second month
10	G. W.	♂	Negro	7 days	4	4	6 wk.	50	2	15	12.50	11.43	8.19	4.61	Viosterol discontinued last two weeks of observation

OUTLINE OF PROCEDURE FOR STUDY

All the infants studied were prematurely born in the maternity service of the Herman Kiefer Hospital. These patients were followed over periods varying from two to four months. The daily dose of viosterol was measured by uniform droppers delivering three drops to the minim. The dose was increased in accordance with the evident needs of each patient as indicated by determinations of serum calcium and phosphorus, roentgenography and general physical improvements, as follows: (*a*) biweekly serum calcium and phosphorus estimations; (*b*) biweekly roentgenograms of the long bones and chest; (*c*) initial complete blood count and subsequent hemoglobin determinations every two weeks; (*d*) general growth and weekly increase in weight; (*e*) persistence or improvement in craniotabes; (*f*) appetite and sleep.

3. Karelitz, Samuel: Activated Ergosterol in the Treatment of Rickets, Am. J. Dis. Child. **36**: 1108 (Dec.) 1928.
4. Sobel, Jacob; and Claman, Irving: Observations on the use of Irradiated Ergosterol in Active Rickets, Arch. Pediat. **46**: 1 (Jan.) 1929.
5. Jundell, J.: Klinische Versuche über Ersatzmittel für Lebertan bei der Profylaxe der Rachitis, Acta paediat. **8**: 375-392, 1928.
6. Vogt, E.: Ehrfahrungen mit der Anreicherung der Nahrung an Vitaminen durch Zufuhr von Vigantol während der ersten Lebenszeit, München. Med. Wchnschr. **75**: 721 (April 27) 1928.
7. Wilkes, E. T.; Follett, D. W., and Marples, Eleanor: Treatment of Rickets with Irradiated Ergosterol, Am. J. Dis. Child. **37**: 483-496 (March) 1929.

period of time had elapsed for making the necessary observations.

At the end of the sixth week none of the infants in table 2 showed craniotabes except patient 5. In table 3, patients 1 and 2 developed craniotabes, which disappeared at the end of the fourth week of treatment.

Patient 1, table 1, was 3 weeks of age before viosterol was given. The calcium-phosphorus index was 36.92 initially, which according to McCollum is considered pathognomonic of rickets, but increased to 47.68 in two weeks. The roentgenograms showed no evidence of rickets nor was there any clinical evidence. His weight increased steadily, keeping pace with the increased calcium and phosphorus ratio. The hemoglobin varied between 85 and 90 per cent. The umbilical and right inguinal hernias which he had from birth were definitely healing. The inguinal hernia had entirely healed at 3 months and his weight had increased 4¾ pounds (2 Kg.). At this time he developed whooping cough, which cleared up in five weeks with the use of pertussis ectoantigen in large doses and one roentgen exposure over the mediastinum. Two months following his recovery from whooping cough, he developed a slight diarrhea and thrush. This, however, did not prevent a gain in weight nor a steady increase of serum calcium

and phosphorus. At the age of 5½ months, his weight was 11 pounds 8 ounces (5 Kg.), a gain of 7 pounds over his birth weight, and the calcium-phosphorus index was 91.43.

Patient 2, table 1, did well on the smaller dose of viosterol in spite of the fact that the calcium-phosphorus

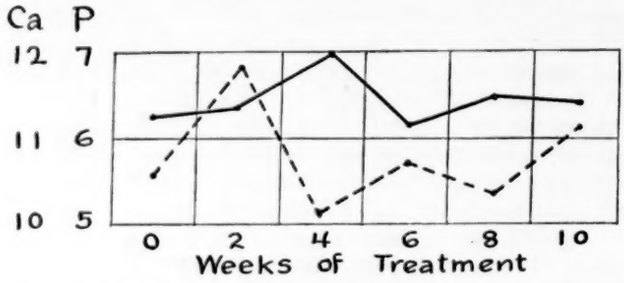

Chart 1.—Biweekly calcium and phosphorus estimations based on a group of thirty-two premature infants treated with viosterol 100 D: solid line, phosphorus; broken line, calcium. The amounts of phosphorus and calcium are in milligrams per hundred cubic centimeters of blood serum.

index was 29.23 and the hemoglobin was 50 per cent initially. There was, however, no roentgenologic or clinical evidence of rickets. Within two weeks' time, the hemoglobin increased to 75 per cent and the calcium-phosphorus index was 48.05. On recent examination this child, at the age of 18 months, was found to have eight teeth, with others ready to erupt, to have a hemoglobin count of 80 per cent, he weighed 18 pounds 12 ounces (8.5 Kg.) and he was able to walk alone.

Patient 5, table 2, showed considerable drop in the calcium-phosphorus index. The reason for this soon became apparent. This infant did not receive viosterol in continuous dosage during the last month of observation. He was abandoned by the mother and left to the care of disinterested members of the family, who gave him viosterol irregularly. Some days the baby received two doses and many days he received none. His hemoglobin dropped to 40 per cent during this period.

Patients 2 and 9, table 2, were interesting from the standpoint of the use of viosterol in infections. Both of these premature infants developed lobar pneumonia two weeks after birth, and not only survived but also gained considerably in weight. They received effective doses of viosterol throughout the course of their illnesses without any evidence of intolerance.

OBSERVATIONS ON RATIO OF CALCIUM TO PHOSPHORUS

It will be seen in chart 1, based on biweekly serum calcium and phosphorus estimations during the course of treatment of the group of thirty-two premature infants included in tables 1, 2 and 3, with a dosage of from 30 to 60 drops daily of 100 D viosterol, that the calcium is at a normal level initially, the average being 10.63 mg. per hundred cubic centimeters of blood serum. The same is true of the phosphorus, which was found to average 6.32 mg. per hundred cubic centimeters of blood serum. The product of the two in the initial period is 67.18, which is considered a satisfactory ratio according to the McCollum index (the minimum being 40.0, below which rickets is inevitable). The calcium during the second week took a sharp rise but the phosphorus remained about the same, giving an index of 74.88.

During the fourth week of treatment, there is a fall in calcium and a rise in phosphorus, the index being 71.40. In the sixth week the calcium-phosphorus index was 67.40, well within the normal range. However, it is lower than any index in the preceding four weeks, which may be accounted for by greater demands of the rapidly growing infant for these inorganic elements. These salts are being mobilized and utilized for the bony structure, muscles and nervous system in greater amounts than can be obtained in the food. Hence, it is rational to assume that reserve depots are called on to make up the deficit. It is a question, then, whether or not the calcium and phosphorus intake in food should be supplemented by collateral administration of these salts.

In the eighth and tenth weeks the calcium-phosphorus indexes show an upturn in ratio coincident with a greater intake of food. Although this may not be the specific answer to the improvement in calcium and phosphorus ratios, it would seem to play not a little part.

TABLE 2.—*Gain in Weight and in Serum Calcium and Phosphorus of Ten Premature Infants During Use of Maximal Doses of Viosterol 100 D*

Number	Name	Sex	Race	Age	Birth Weight Lbs.	Birth Weight Oz.	Duration of Treatment	Total Daily Dose of Viosterol, Drops	Weight Increase Lbs.	Weight Increase Oz.	Serum Calcium Initial	Serum Calcium Last	Phosphorus Initial	Phosphorus Last	Comment
1	M. C.	♀	White	3 wk.	4	14	2 mo.	60	3	6	11.60	12.00	5.80	7.00	Under constant care
2	R. A.	♀	White	3 days	5	0	2½ mo.	60	3	7	13.75	10.70	7.19	7.24	Lobar pneumonia
3	J. H.	♂	Negro	3 days	5	7	4 mo.	60	2	4	12.36	12.20	4.33	5.81	Twin
4	V. H.	♂	Negro	3 days	4	6	4 mo.	60	4	3	13.80	11.88	5.32	6.58	Twin
5	A. D.	♂	Negro	5 days	2	5	5 mo.	60	4	5	11.28	9.64	5.23	4.31	Umbilical hernia, secondary anemia, hydrocele
6	J. L.	♀	Negro	4 days	4	0	10 wk.	60	3	12	12.39	9.99	6.33	5.49	Breast fed; mother working
7	F. N.	♀	White	9 days	5	3	2 mo.	60	1	7	10.80	11.77	7.24	7.75	Maternal tuberculosis
8	V. S.	♀	White	6 days	4	12	7 wk.	60	3	0	13.17	13.09	7.24	5.91	Under constant care
9	G. V.	♀	White	7 days	4	11	2 mo.	72	1	10	12.51	10.98	7.69	7.63	Lobar pneumonia
10	C. W.	♂	Negro	3 days	4	2	5 mo.	60	9	1	11.85	13.56	5.32	6.91	One of twins; not seen for two months; secondary anemia

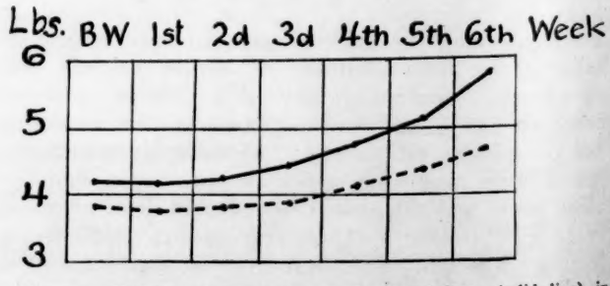

Chart 2.—Weight gain of twenty premature infants (solid line) in tables 1 and 2 treated with viosterol 100 D, and of twenty premature infants (broken line) under same basal conditions but not given viosterol. Group 1 increased 38 per cent and group 2 increased 20 per cent in weight in six weeks. BW indicates birth weight.

Chart 2 shows that the average weight of the infants in this group had increased 38 per cent, in contrast to a similar group not treated with viosterol 100 D, which showed only 20 per cent gain in weight for a similar period. It is well to remember that the diet used was the same for the two groups, and the only difference in routine care was the use of viosterol in the series showing the greatest increase in weight during this six weeks period.

the second week, showing 23.8 per cent of deaths for the entire year. In 1929, of 159 premature babies born, 24 died; 8 within twenty-four hours; 10 after twenty-four hours up to the second week; 3 during the second week; and 3 died between the second and tenth week. The proportion of mortality for the year 1929 was 15 per cent. During the first nine months of 1930 there were 92 premature infants born, 9 of whom died: 5 during the first twenty-four hours; 3 after twenty-

TABLE 3.—*Gain in Weight and in Serum Calcium and Phosphorus in Twelve Premature Infants During Use of Maximal Doses of Viosterol 100 D*

Number	Name	Sex	Race	Age	Birth Weight Lbs.	Birth Weight Oz.	Duration of Treatment	Total Daily Dose of Viosterol, Drops	Gain in Weight Lbs.	Gain in Weight Oz.	Calcium First	Calcium Last	Phosphorus First	Phosphorus Last	Comment
1	E. L.	♀	White	1 day	2	12	13 wk.	60	4	14	11.20	14.70	6.02	6.95	Twin
2	M. L.	♀	White	1 day	3	2	13 wk.	60	5	0	11.40	12.80	7.25	7.20	Twin
3	B. S.	♂	White	1 day	3	11	10 wk.	60	3	2	10.30	13.00	5.74	6.62	Fall on concrete floor showed no ill effects
4	H. W.	♀	White	1 day	4	7	4 wk.	60	1	2	11.40	9.10	5.44	5.79	
5	Z. H.	♀	White	1 day	2	10	6 wk.	60	1	2	9.80	10.70	5.34	5.20	
6	J. S.	♂	Negro	1 day	4	12	4 wk.	60	1	4	8.40	14.40	6.60	5.88	
7	G. J.	♀	White	1 day	4	8	5 wk.	60	0	13	11.90	11.70	6.60	5.29	Slight diarrhea
8	B. P.	♂	White	1 day	3	4	6 wk.	60	2	8	13.23	10.05	6.70	6.92	
9	G. P.	♀	White	1 day	3	4	6 wk.	60	1	9	8.61	12.50	6.90	6.10	Gavage feeding for two weeks
10	G. M.	♀	Negro	1 day	3	9	4 wk.	60	0	7	6.51	12.40	6.40	5.92	Gavage feeding for three weeks
11	V. A.	♂	White	1 day	4	4	4 wk.	60	0	10	8.82	10.10	7.50	6.92	
12	D. M.	♀	White	1 day	4	9	3 wk.	60	0	12	11.00	11.60	5.91	7.59	

ANALYSIS OF THE MORBIDITY TABLE

After observing these premature infants and noting their general improvement with the use of viosterol since the early part of the year 1929, an investigation was made regarding the mortality of premature infants at the Herman Kiefer Hospital during the years 1928, 1929 and 1930.

During the three years covered in table 4 these infants received the same type of feeding, were cared for in heated beds, and received the same type of stimulation. They were given interstitial saline or dextrose solutions, or whole blood if necessary. In other words, they were all treated the same except that in 1929 viosterol was given to most of them and so far in 1930 (September), it has been given to all premature

four hours up to the second week, and 1 after the second week, or 10 per cent mortality for the first nine months of 1930.

It will be noted that there is not only a decided decrease in the percentage of mortality from 1928 to 1929 when viosterol was given to a majority of the premature infants, but also the number of deaths during the first week decreased. A greater decrease in the number of deaths is evident for nine months of 1930 when all premature infants received viosterol from the first day of life.

It is not, of course, asserted that the reduced death rate in the first twenty-four hours for the years 1929 and 1930 can be attributed to viosterol, but it is believed that the reduced mortality of premature infants evident

TABLE 4.—*Comparative Yearly Statistics of Morbidity for 377 Premature Infants Observed Before and After the Prophylactic Use of Viosterol 100 D*

Year	Total Number Born	Morbidity: Died in 24 Hours	Died from 24 Hours to Second Week	Died During Second Week	Died After Second Week	Twins Born	Twins Died	Maternal Syphilis Born	Maternal Syphilis Died	Positive Cord Wassermann Born	Positive Cord Wassermann Died	Total Number of Deaths	Mortality, per Cent
1928	126	18	12	..	..	14	6	2	..	7	2	30	23.8
1929	159	8	10	3	3	20	1	7	..	10	2	24	15.0
1930	92*	5	3	..	1	6	..	1	..	..	..	9	10.1

* Premature infants born before September.

infants. At present viosterol is being given to them in the following manner: Each infant receives 1 drop of viosterol on the tongue before each feeding, thus making sure that the entire amount is ingested. It is increased 1 drop each day up to 10 drops before each feeding; in other words, 60 drops daily. The infants are kept on this dose for two or three months, after which the dosage is gradually decreased to 30 drops daily.

There is a note of interest in the morbidity table. In 1928, of 126 premature infants born, 30 died; 18 within twenty-four hours and 12 after twenty-four hours up to

after the first week of life for the past two years may be of some significance in evaluating the prophylactic virtue of viosterol.

COMMENT

Shortly after this study was undertaken it became apparent that there was a definite improvement in the weight, general well being, hemoglobin concentration, calcium-phosphorus index and bone development in those infants constantly under supervision who received an adequate dose of viosterol, in contrast with those infants whose mothers were rather indifferent about following instructions as to the daily administration of viosterol

and the general care and feeding of the infant. The class of people dealt with was of the lowest indigent type.

Nearly every new-born infant probably is endowed with the amount of calcium and phosphorus in its body necessary to maintain a satisfactory balance until such time as adequate amounts of these elements are received through its mother's milk. This is especially true of the full term infant. Also, the artificially fed baby may do well for many weeks without requiring an extra supply of vitamin D to keep up a normal calcium and phosphorus balance. On the other hand, the premature infant may be more susceptible to the development of a negative calcium-phosphorus balance on account of difficulty in ingesting enough milk, even by gavage, during the first few weeks of life.

It is an accepted fact that premature infants are prone to develop rickets. They possess other physical inadequacies which directly or indirectly cause a high death rate in the first few weeks of life. In respect to the high incidence of rickets, it does not seem to be entirely due to the infant's inability to take sufficient milk, nor has it been established that a depletion of calcium and phosphorus necessarily occurs when the milk intake is subnormal.

The relation of intrinsic and available extrinsic calcium and phosphorus to their utilization after adequate administration of vitamin D is not well understood and, until this biologic phenomenon is fully explained, exact procedures for prevention of rickets cannot be postulated. Nevertheless, it is increasingly apparent that vitamin D in the form of viosterol is a vitally important factor early in the life of those infants highly susceptible to rickets, and its judicious use from the first day of birth seems to increase the possibility of their survival and normal growth.

Cod liver oil in doses sufficient to prevent rickets in premature infants is not well tolerated because of its large content of fat. Viosterol, however, has supplied a medicament containing vitamin D without an appreciable amount of fat and with a potency adjusted so that one drop is equivalent to the amount of vitamin D in from one to two teaspoonfuls of standardized cod liver oil.

One is enabled, therefore, to give these premature infants effective doses of vitamin D without upsetting digestion, and thus prevent rickets from developing. Moreover, the physical well being of the premature infant is greatly improved as observed clinically. There is a definite increase in the weight as compared with untreated infants; also, there is an increased appetite, greater resistance to infection and, finally, the percentage of deaths of premature infants is reduced when an adequate daily dose of viosterol is started within twenty-four hours after birth. The dose of viosterol should be from 45 to 60 drops daily after the first ten days. This dose should be continued for eight or ten weeks, after which period it may be gradually reduced to 20 or 30 drops daily.

Admittedly, the exact dose of viosterol in the prevention of rickets is somewhat questionable at the present time and further study is needed. It is believed, however, that during the investigation of the past eighteen months something has been accomplished in suggesting a minimal dose of 30 drops and maximal dose of 60 drops daily as an effective range for the prevention of rickets in premature infants.

David Whitney Building.

Clinical Notes, Suggestions, and New Instruments

CONGENITAL VALVE FORMATION OF THE BLADDER NECK

MAURICE MUSCHAT, M.D., AND HARRY LOWENBURG, M.D.
PHILADELPHIA

A boy, aged 1 year, seen by one of us (H. L.), Jan. 28, 1930, had been previously treated for anorexia, vomiting, constant crying and inability to gain weight. The suggestion was made that the child was a hydrolabile baby (Finkelstein), gaining rapidly and losing rapidly without any acute alimentary disturbance to account for it. An explanation of this may be found in the hydronephrosis as revealed at autopsy, although this as a cause of the unstable weight was not suggested during life.

The child's weight was 16 pounds 3 ounces (7 Kg.). The size of the abdomen was striking but examination yielded no satisfactory results at that time. Four weeks later the child weighed 17 pounds 13 ounces (7.8 Kg.). The child began to

Fig. 1.—Dilated bladder with the valves, dilated right and left double ureter and extensive bilateral hydronephroses.

sleep poorly and commenced to cry often. A specimen of urine obtained showed a large amount of pus. The child's abdomen was then examined under light chloroform inhalation but the results were inconclusive.

The child was admitted to the Mount Sinai Hospital for a urologic study. Iopax was employed; 23 cc. of the 40 per cent solution was injected intravenously. The pictures revealed a large mass in the region of the right kidney; no shadow could be elicited in the area of the left kidney. The tentative diagnosis of a solitary kidney was made. Cystoscopy was then done: a number 11 baby cystoscope being used. It met an obstruction in the midportion of the anterior urethra, which was dilated with bougies and the cystoscope then passed to the bladder. Before the bladder could be entered another obstruction was encountered beyond the external sphincter and just below the bladder neck. After some gentle manipulations the cystoscope slipped into the bladder. It was noted that the instrument was held rather firmly in a grasp by the bladder neck. The bladder was found enormously distended with a cloudy urine, holding much over 500 cc. The bladder walls and ureteral orifices could not be seen distinctly owing to the nonirrigating type of this

cystoscope. The bladder neck was found to be tight and the opening was slitlike. A diagnosis was made of congenital valve formation of the posterior urethra with dilatation of the upper urinary organs, and stricture of the anterior urethra.

Daily bladder lavages were given to enable satisfactory cystoscopic ureteral catheterization later. The child gradually became more uremic and died.

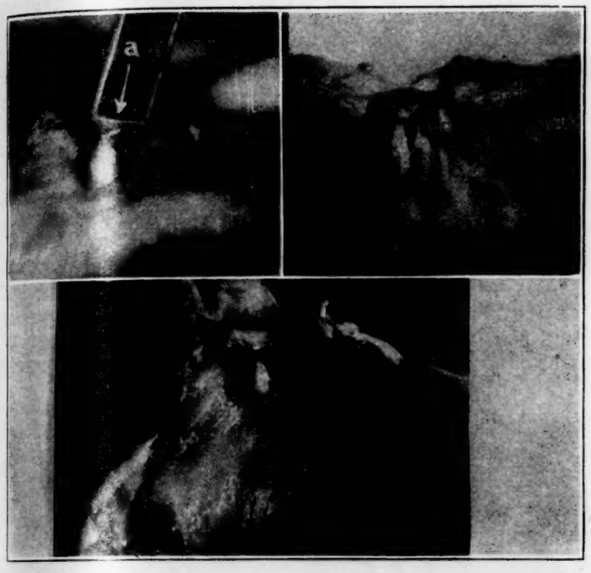

Fig. 2.—Valve formation seen from various angles: *a* shows the valves.

An autopsy was done. We report the changes in the urinary tract only, as the other organs were normal. The left kidney presented a mass measuring 11 by 7 cm. The kidney tissue left was very little, situated on top of an enormous hydronephrosis. The thickness of the kidney tissue was 7 mm. The pelvic mucosa was inflamed and thickened. There were two ureters with a main stem in the bladder. The ureter was enormously dilated and kinked in many places. The right kidney measured 9.5 by 4 by 2.5 cm. It presented a condition similar to that of its mate. The bladder was tremendously thickened and trabeculated, the mucosa showing numerous petechiae due to passive congestion. The posterior urethra showed the typical development of symmetrical valves, extending on both sides of the verumontanum, forming pocketed valves. The valves were very thick and fibrous.

The diagnosis was congenital valve formation in the posterior urethra with resulting destruction of the upper urinary tract.

1018 Medical Arts Building.

CONGENITAL PLEXIFORM NEUROFIBROMAS AND ELEPHANTIASIS NEUROMATOSA OF THE RIGHT ARM AND NECK (VON RECKLINGHAUSEN'S DISEASE): SUPPLEMENTARY REPORT

F. P. ANZINGER, M.D., SPRINGFIELD, OHIO

In 1919 I[1] reported a case of von Recklinghausen's disease, with a review of the literature. The report may be thus summarized:

Francis S. appeared normal at birth. At the age of 1 year the boy cried when the upper part of the right arm was handled. The discomfort was due to subcutaneous fibrous cords occurring in the upper and lower parts of the arm. These were removed and the boy had considerable relief. In the course of years the whole right upper extremity grew in noticeable disproportion to that of the left arm. The skin became pigmented and thickened, simulating an ordinary elephantiasis. Brownish pigmentation gradually increased over the body in large areas. Roentgenograms of the bones of the right upper extremity showed trophic changes and atrophy.

1. Anzinger, F. P.: Congenital Plexiform Neurofibromata and Elephantiasis Neuromatosa of Right Arm, Ohio State M. J. **15**: 424 (July) 1919.

To establish its congenital origin, it was shown that the father had multiple fibromas and pigmented spots over his body but otherwise appeared to be normal. A review of the literature demonstrated that mild cases are overlooked or may be incorrectly diagnosed. One fatal case revealed changes in the central and peripheral nerves.

In concluding the report of the case I stated that the disease usually runs a benign course, but owing to the age of the boy a guarded prognosis should be given. Unfortunately for the patient, this prognosis was justified. The patient is now 21 years old and has scarcely been able to do menial tasks as a laborer. He is fairly intelligent but his ambitions are thwarted by a burdensome mass of flesh and bones comprising the right upper extremity. Roentgenograms show a marked thinning of the bone shafts of the upper and lower parts of the right arm. The distal ends of the long bones are irregularly enlarged and more porous, not unlike bone cysts in appearance. The wrist joint is disorganized, feeling like a "bag of bones." The hand structures are mostly spared, but there is marked weakness owing to faulty innervation from above. The hyperplastic soft tissue over the back of the neck bulges, not unlike a tumor. The major projection in the center of the neck feels hard. Roentgenograms of the neck show atrophy and absorption of the bodies of the sixth, seventh and eighth vertebrae, thus explaining the angular deformity on the posterior surface. Inquiry into the family history reveals that the father still has the larval form of the disease previously reported. The mother has an advanced pulmonary tuberculosis. One brother recently died at the age of 18 from abscess of the brain. For years he had large pigmented areas over the abdomen and extensor surfaces of the knees. One brother, aged 15, has one small pigmented spot. One sister, aged 13, has a few brown spots on the chest. One sister, aged 11, is normal.

Through the courtesy of Dr. A. H. McKnight, this case recently came under my observation. He suggested that amputation of the right upper extremity may give temporary relief from the burdensome mass.

Fig. 1. — Elephantiasis neuromatosa: posterior deformity of the neck is well shown.

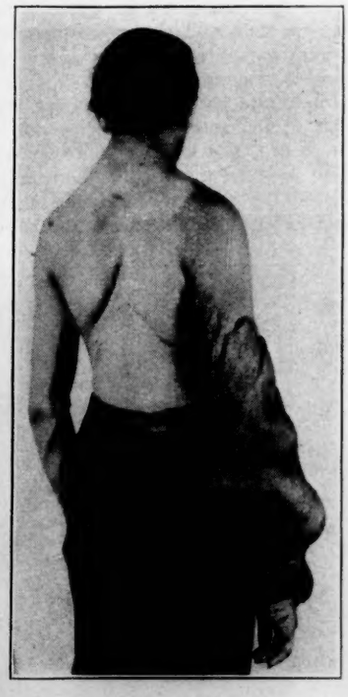

Fig. 2. — Elephantiasis neuromatosa: note the tumor-like deformity on the neck.

SUMMARY

This disease was first described by von Recklinghausen in 1882. He emphasized the congenital anlage. Microscopically there is a neurolemmar proliferation which later ends in a dense fibrosis of the nerve. The disease involves the peripheral nerves but occasionally may invade the central nervous system, producing gross trophic changes in the bones and viscera. It is essential

to recognize the milder types, which are often mistaken for other diseases. One case with nodular swelling in the neck was mistaken for Hodgkin's disease.

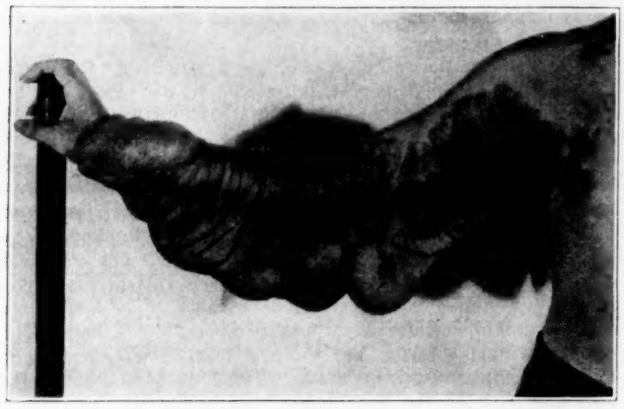

Fig. 3.—Elephantiasis neuromatosa: right upper extremity; shows the pendulous mass and pigmentation.

The bone changes and disorganization of tissues justify the opinion that the disease in this patient will progress insidiously and some localized complication may cause a fatal termination.

726 First National Bank Building.

FOURTH OF JULY ACCIDENT: FOREIGN BODY THROUGH BRAIN *

JOEL C. SWANSON, M.D., FARGO, N. D.

W. O., a youth, aged 18, was admitted to St. Luke's Hospital, July 4, 1929. He was brought to the emergency room, sitting in a wheel chair, an air pump plunger rod through his head. He was cold and clammy, his pulse slow and weak, with the appearance of severe shock, not unconscious, but unable to respond to questions.

Immediate antishock treatment was started. The protruding shaft was cleansed with iodine and withdrawn, the patient was put to bed, and tetanus antitoxin was given. The pump shaft was five-sixteenths inch in diameter and 18 inches long. It had entered the skull through the medial and upper angle of the right orbit, without injury to the eyeball, and had protruded

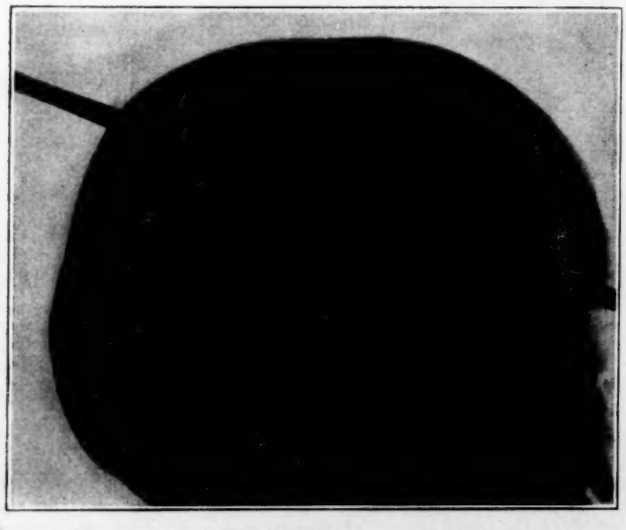

Fig. 1.—Rod in situ.

6 inches in the midline at about the parietal and occipital articulations.

The patient's mother stated that the young man had been placing lighted firecrackers in the pump barrel and holding the handle while they exploded. When the accident occurred he had placed two firecrackers in the pump. This time the handle slipped off and the piston shaft was shot through his head.

July 5, a partial flaccid hemiplegia appeared. This was of the crossed type, involving the right side of the face and the left arm and hand (drop wrist), with the left lower extremity showing a mild type of flaccid paralysis. The paralyzed members were protected by splints and sand bags. A 20 per cent solution of mild silver protein was instilled in the affected eye, and moist boric acid dressings were applied to the puncture wounds.

To counteract the cerebral edema associated with the trauma, 50 cc. of 50 per cent dextrose was given intravenously. This was given once or twice daily for five days. Gradual improvement was noticed. By the end of the first week the temperature, pulse and respiratory rate were normal. The blood pressure remained constant with a systolic of 108 and diastolic of 60. The hemiplegia disappeared slowly except for the wrist drop, which did not change.

At the end of three weeks the patient began to develop headaches with an increasing force and frequency. Examination of the retinas showed marked choked disks. The 50 per cent dextrose was again given intravenously in 50 cc. doses and continued daily for five days until the headaches had disappeared and the disks had cleared.

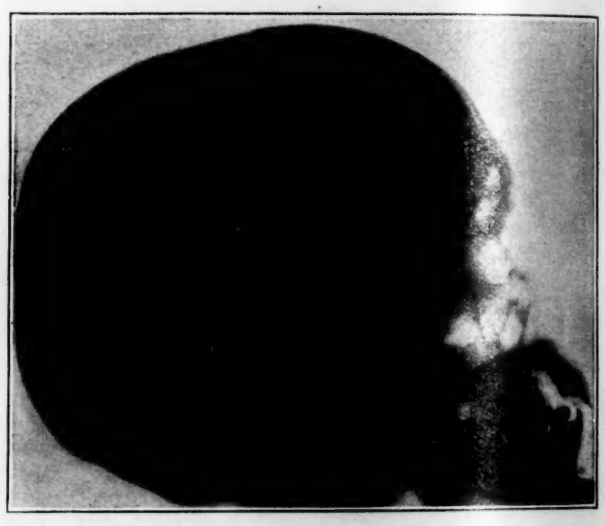

Fig. 2.—Four weeks after accident: healing of bone without encroachment on brain.

August 8, the first movements were noticed in the left hand and fingers. August 11, these movements were fairly good. Progress from now on was uneventful and very satisfactory.

This patient has been seen at frequent intervals for a year. The drop wrist has disappeared, some muscular atrophy and weakness are present in the hand and forearm, but he states that this is also improving. There is a slight ptosis of the right eyelid and some exophthalmos of that eye, but his vision is unimpaired. He has completed another year of high school with success, so there is no apparent mental impairment.

We shall continue to see him regularly for several years to watch for any latent signs of abscess formation or impairment of the central nervous system.

* From the Section of Orthopaedic Surgery, the Fargo Clinic.

Health in the Tropics.—In most tropical climes the basal metabolism is distinctly lower than in the temperate zone, and there is a definite reduction of vasomotor tone. This would indicate that climatic conditions per se are capable of producing effects on the organism and may explain in some measure the apparent lassitude and indolence common to natives. A permanent colonization of the low-lying regions of the tropics, with equable, hot, moist climate and no cool season, by the white race is in our opinion not possible, as a uniformly damp, hot climate endured for years diminishes the resistance against disease and has a markedly deleterious effect on the nervous system. —Castellani, Sir Aldo: Climate and Acclimatization, London, John Bale Sons and Danielsson, Ltd., 1931.

Special Article

THE INDISPENSABLE USES OF NARCOTICS

IN THE TREATMENT OF COUGHING*

ROBERT A. HATCHER, M.D.
NEW YORK

A cough is a sudden expiratory blast, usually after a previous deep inspiration with closure of the glottis, whereby the rima glottidis is opened suddenly and fluid, solid or air present in the respiratory tract is expelled. It is voluntary or it is induced reflexly by a peripheral stimulus (irritation of sensory nerve endings) carried by an afferent nerve to a central mechanism which coordinates the numerous acts involved in coughing. It is distinguished from the voluntary process of clearing one's throat in which, after a deep breath, there is an expiratory blast through the narrowed space between the root of the tongue and the lowered soft palate for the removal of a foreign body, or which may consist of a slight voluntary cough.

The act of coughing differs from forced expiration mainly by its suddenness, by the closure of the glottis during the first part of the act and its sudden opening, the efferent paths of the cough reflex being those concerned in forced expiration and control of the glottis.

The diagnosis of the cause of coughing, an understanding of its uses and disadvantages, and the treatment (including removal of the cause) require a clear understanding of the mechanism of the reflex, and it is necessary to discuss briefly the cough center, the nervous paths, the distribution of the sensory endings (or sensory nerve apparatus), the stimuli that give rise to coughing, the diagnostic uses of coughing, the service it performs, its disadvantages and dangers, and the principles of the therapeutic treatment of a cough, because narcotics are often misused by those who fail to bear these in mind.

Kohts [1] cut through the medulla at various levels and observed the point at which the cough reflex was abolished. He did not consider the evidence wholly satisfactory, but he concluded that the cough center probably lies in the middle of the floor of the fourth ventricle beginning about 2 mm. above the obex. The cough center is considered here as a part of the respiratory center.

Nothnagel [2] found the undersurface of the vocal cord extending to the cricoid cartilage to be the most sensitive, the trachea much less so; its sensitiveness rapidly declined with repeated irritation; the point of bifurcation of the trachea was almost as sensitive as the larynx. He observed decreasing sensitiveness in the smaller bronchi, but he was unable to induce cough by irritation of the alveoli. These observations are in harmony with those of more recent investigators. Nothnagel was unable to produce coughing by irritation of the normal or inflamed pleura, and since pleurisy may occur without a cough he concluded that a cough occurring in pleurisy is due to a complication. Nothnagel did not attempt to induce coughing experimentally by irritation of the gastric mucous membrane, but he believed that the stomach is not a direct source of coughing. Gastric irritants commonly gave rise to vomiting, but not to coughing, and the so-called gastric cough probably is induced by stimuli arising from some other organ.

The extreme sensitiveness of the point of bifurcation causes infected material from one lung which reaches this point to be expelled without infecting the opposite lung. The danger of interfering with this reflex by depressing the center with narcotics is obvious. The early administration of morphine may suppress the cough for many hours, and occasionally it interferes with the diagnosis.

Smith [3] says that coughing is a signal that something is irritating a branch of the vagus nerve or the cough center and is nature's effort to remove the irritating substance. The branches of the vagus are: (1) a small meningeal branch, which is not concerned with coughing though it may possibly account for vomiting in meningitis; (2) Arnold's branch to the ear—a rare cause of coughing due to disorders of the external ear (wax, eczema); (3) pharyngeal branch—a frequent source of coughing; (4) superior laryngeal branch—sensory to base of tongue and larynx, the most frequent source of coughing with or without visible changes; (5) inferior laryngeal branch—motor for the act of coughing, not a cause of coughing but of inefficiency and other peculiarities in the act of coughing; (6) cardiac branches; (7) pulmonary branches—concerned in the cough of gross pulmonary or pleural disease; (8 and 9) esophageal and pericardial branches; (10) gastric branches—occasionally dyspepsia is attended with coughing (see comments on Nothnagel, previously mentioned).

The fact that coughing results from irritation of various organs points to the necessity of a correct diagnosis. The following causes are listed by Voorsanger and Firestone [4] among those commonly undiagnosed: enlarged bronchial root glands with peribronchial and hilar thickening, with thickening of apical pleura, with basal thickening and density; coarse mottling and fibrosis; healed pulmonary fibrosis with calcification of glands; emphysema, bronchiectasis and asthma; chronic bronchitis and pharyngitis; sinusitis, tonsillitis, pleurisy with effusion; mitral incompetence; aortitis and aneurysm; thyroid insufficiency; hyperthyroid; right pneumothorax (spontaneous); lung abscess, bronchopneumonia with abscess; neurasthenia and anemia.

Among the common causes of coughing also often overlooked are hypertrophy of the lingual tonsil (treated by deep searing with the galvanocautery); elongation of the uvula, often with papillomatous extension at its tip and pharyngeal growths in which the follicles are greatly enlarged and resemble adenoid tissue. Such growths occasionally cause coughs lasting for years but disappear at once when the growths are removed.[5] A patient suffering with a chronic cough

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*In this article, narcotics are considered indispensable in any case in which they are used by a properly qualified physician as wisely as possible but an effort is made to point out how their use may be reduced to a minimum.

*These articles are prepared under a plan of cooperation between the American Medical Association, the Committee on Drug Addiction of the Division of Medical Sciences of the National Research Council, and the Division of Mental Hygiene of the United States Public Health Service. Their object is to reduce the legitimate use of addiction drugs to a minimum by replacement, wherever possible, with other remedies that will accomplish the desired result. The physicians of the United States are the essential group in any such attempt and it is hoped that these articles will be useful to them in their practice. The funds for this work have been donated to the National Research Council by the Bureau of Social Hygiene, Inc.

1. Kohts, O.: Experimentelle Untersuchungen über den Husten, Virchows Arch. f. path. Anat. **60**: 191, 1874.
2. Nothnagel, H.: Zur Lehre vom Husten, Virchows Arch. f. path. Anat. **44**: 95, 1868.
3. Smith, F. J.: Index of Differential Diagnosis, ed. 3, p. 148.
4. Voorsanger, W. C., and Firestone, Fred: Undiagnosed Cough, J. A. M. A. **89**: 1137 (Oct. 1) 1927.
5. Mayer, E.: Personal communication to the author.

due to one of these undiagnosed conditions may resort to the use of a "patent" medicine containing morphine and become an addict.

Coughing is frequently the only symptom present in the first stage of cardiac insufficiency. Carp [6] states that an inflammatory incomplete external fistulous tract, which was adherent to the vagus nerve, induced a dry hacking cough for two years which stopped promptly after excision of the tract. A cough in a tuberculous patient is not necessarily due to tuberculosis itself but may result from mouth breathing and consequent irritation of the pharyngeal mucous membrane. Pagniez and Lerond [7] reported violent paroxysms of coughing which resisted treatment for six months. It was associated with hemoptysis, indicating reflex congestive phenomena, probably connected with an existing polycythemia. Brennemann [8] discusses the different types of cough in nontuberculous children. He says that if any of certain coughs are productive or accompanied by constitutional symptoms, examination of the sputum is imperative.

Coughing has only one useful purpose—the removal of material from the air passages. But there are many disadvantages, and even dangers, due to the mere act of coughing; and while it is commonly of minor significance, one or more of the following may require consideration: interference with sleep; pain and exhaustion; paralysis of a weak heart; cerebral hemorrhage in hypertension; dislodging a thrombus in a bleeding vessel; hemorrhage after operation, such as tonsillectomy; tearing of a sutured lung from the wall of the chest after an operation for pulmonary suppuration; the tearing of pleural adhesions; the tearing of alveoli leading to pneumothorax; the rupture of a vessel resulting in hemoptysis; the rupture of a lung abscess; the fracture of a rib (not so rare as many suppose); the tearing of sutures after an abdominal operation; causing hernia; emphysema of sound alveoli; dissemination of infected material outside the body, with the spread of disease to others, or within the body with the extension of the area of disease; aspiration of infected material into sound parts of the lungs; dissemination of iodized oil in roentgen-ray work, spreading the area of infection; maintaining a tuberculous process in an active state by exertion and heightened pressure in the thorax; rupture of an aneurysm; postoperatively, particularly after operations on the bladder or intestinal tract.

A productive cough should not be interfered with unless it does more harm than good, but there are few conditions in which pernicious interference is more common than that in which a cough which is removing abundant secretion is stopped without relieving the pathologic cause of the secretion.

Morphine should not be used for a cough when simple means suffice; hence the latter will be considered first. Intelligent patients are easily trained to avoid coughing except when it is necessary for expectoration. Lord [9] warns patients with chronic pulmonary tuberculosis that useless coughing is a source of danger of laryngeal tuberculosis. He recommends wide strips of Lilienthal's Elastikon about the thorax for diminishing the pain and intensity of useful cough and directs the patient to lie on the affected side during sleep, compressing the affected lung, diminishing respiratory movement in it, and lessening the desire to cough. He says that a sudden inspiration will often abolish the desire to cough. Various authors discuss the effectiveness of gravity in draining the respiratory passages in the absence of coughing when the body is slightly inclined with the head lowered.

Demulcents: A demulcent serves to protect an inflamed surface against irritation and thereby lessens coughing. The use of demulcents is limited to direct application to the inflamed mucous membrane in the upper respiratory passages. They frequently serve as a nidus in which bacteria thrive. The mouth and throat should be cleaned occasionally when demulcents are used.

Expectorants: The alkalis have a direct liquefying action on sputum. Antimony and potassium tartrate acts reflexly, apomorphine directly, on the vomiting center to induce nausea which is attended by increased bronchial secretion. Ammonium chloride is frequently used in the form of troches, but its exact mode of action is not known.

Irritation of various parts of the respiratory tract is the most common cause of coughing. In addition to other measures directed to the relief of congestion and to preventing the extension of inflammation to the lungs, the treatment of the cough of acute bronchitis is directed to the increase of bronchial secretion when it is scanty, to its liquefaction when it is thick and tenacious, to lessening secretion when it becomes excessive, and to depressing the center when coughing has become injurious in spite of other measures. Nauseants, such as syrup of ipecac and wine of antimony, promote secretion; the inhalation of vapor from hot water to which compound tincture of benzoin has been added, or water as hot as it can be sipped with comfort, promotes secretion, helps to keep the mouth and throat clean, and allays irritation. Thick, tenacious sputum is rendered liquid by the measures mentioned or by potassium or sodium iodide. Little attention is usually paid to the therapeutic use of atropine in coughing. It depresses the sensory endings of the vagus and is sometimes used in small doses for lessening excessive bronchial secretion; but excessive dryness must be avoided.

Chronic bronchitis: The treatment of the cough itself is not essentially different from that in acute bronchitis, but it disturbs the sleep frequently and may require a depressant for the cough reflex. Creosote has been used extensively in the treatment of chronic bronchitis, but its action in this condition has not been satisfactorily explained, and there is a diversity of opinion concerning its value in lessening the cough and expectoration in bronchitis and tuberculosis.

Kuh [10] recommends a mixture composed of menthol, from 1 to 2 per cent; creosote, 1 per cent; camphor, from 0.5 to 1 per cent, and oil of pine needles, 2 per cent, in light liquid petrolatum for whooping cough, acute and chronic bronchitis and bronchial asthma. He says that the results are striking in severe cases of chronic bronchitis and bronchial asthma and that its inhalation is generally followed by several explosive coughs with the evacuation of tenacious mucus, and often affords sleep, while the purulent character of the

6. Carp, Louis: Branchial Fistula — Its Clinical Relation to Irritation of the Vagus, Surg. Gynec. Obst. **42**: 772 (June) 1926.

7. Pagniez and Lerond: Bull. et mém. Soc. méd. d. hôp. de Paris **50**: 1728 (Dec. 17) 1926; abstr. J. A. M. A. **88**: 872 (March 12) 1927.

8. Brennemann, Joseph: The Nontuberculous Child, J. A. M. A. **90**: 586 (Feb. 25) 1928.

9. Lord, F. T., in discussion on Archibald, Edward; and Brown, A. L.: Cough: Its Action on Material in the Tracheobronchial Tract, Arch. Surg. **16**: 322 (Jan., part 2) 1928.

10. Kuh, E. J.: A Successful Method of Intrabronchial Treatment in Asthma, Bronchitis and Allied Affections, M. J. & Rec. **126**: 595 (Nov. 16) 1927.

expectoration rapidly changes and decreases in amount in bronchitis. He says that the treatment is palliative in hay-fever and in the asthma which accompanies it; that the nasal secretion is improved by directing the spray into the postnasal space. It is not used for patients who have fever at first nor for those who do not cooperate. The results in bronchiectasis are satisfactory only occasionally.

Laryngitis: Von Schroeder[11] says that continued outdoor life lessens the excitability of the mucous membrane of the respiratory passages and assists the patients in their efforts to combat the cough stimulus. While continued outdoor life is beneficial, frequent change from a warm room to cold damp air is distinctly harmful; hence one who has acute laryngitis should avoid exposure to the cold. The nose, throat and larynx should receive attention in the treatment of coughs in all infectious conditions.

Depressants: The depression of the respiratory center by morphine lessens the capacity of the already overtaxed weakened respiratory center of debilitated persons and increases mechanical obstruction of the air passages by interfering with expectoration, and one of the dangers of the use of morphine in coughs in enfeebled patients is that of plugging a bronchus with mucus and interfering with respiration in part of the lung already reduced by consolidation within the limits of safety. This is not an infrequent cause of death. Morphine is actively constipating; codeine is much less so and is preferable when purgation is necessary.

The essential actions and uses of morphine are described briefly in "Useful Drugs."[12] The cough reflex is depressed by relatively small doses of morphine—such as are too small to exert the hypnotic action. The exact dose necessary for the relief of coughing cannot be stated in milligrams or fractions of a grain because severe irritation of the respiratory tract gives rise to strong stimuli, and the stronger the stimuli, the greater is the depression of the center necessary to abolish the reflex that such stimuli would induce. Furthermore, the frequency of coughing must be taken into consideration and the degree to which it is necessary to lessen it. One must also consider the probable state of the center on which the drug is expected to act. When there is widespread central depression the respiratory center is more easily depressed to the danger point than under normal conditions, and in such cases morphine must be used cautiously. Obviously, if demulcents are used to lessen local irritation in the respiratory passages, less depression of the center is necessary than when excessive irritation cannot be treated locally. When it is necessary to depress the cough center, one should invariably use the smallest dose that will serve the purpose and should not employ it more frequently than is necessary to maintain the required degree of control of coughing. The effects of morphine last some hours, and too frequent repetition of the dosage will result in cumulation with unnecessary depression of the respiratory center. The dose of morphine necessary for the relief of coughing, therefore, varies widely, and in some cases as little as $\frac{1}{30}$ grain (2 mg.) will suffice to lessen coughing, especially if that dose be repeated at intervals of from four to six hours. One should never direct that the single effective dose of morphine for a cough be repeated at stated intervals without regard for the varying needs of the patient from hour to hour and from day to day, and the dose should always be reduced to the least amount that alleviation of the symptoms permits. The dangers of morphine for the relief of chronic conditions are too well known to require discussion.

Morphine often causes dryness of the mouth and throat. It has been suggested that the apparent diminished secretion of mucus in bronchitis may be due to greater absorption of water, but it seems probable that the action is central. This may be partially overcome by the simultaneous use of nauseants when they are not otherwise contraindicated, and Murrell[13] suggested the simultaneous use of morphine and apomorphine. The popular brown mixture contains $\frac{1}{300}$ grain (0.2 mg.) of morphine in the form of camphorated tincture of opium, and $\frac{1}{65}$ grain (1 mg.) of antimony and potassium tartrate in the average dose of 4 cc. (1 fluidrachm). Morphine is said to have the advantage over codeine of causing some relaxation of the bronchial muscles, which is useful when the passages are greatly obstructed by an accumulation of mucus. This advantage, however, is usually slight compared to the many advantages of codeine.

The actions of codeine resemble those of morphine in general, but they differ in certain essentials. Codeine is less actively depressant to the higher parts of the brain and to the respiratory center, and it is more actively stimulating to the cord and, with large doses, even to the respiratory center. This probably partially explains why codeine sometimes proves unsatisfactory in the treatment of coughs, and it suggests that failure can often be avoided by a careful regulation of the dose, especially if it is used in connection with other measures for lessening a cough. Mayor[14] says it is practically universally admitted that codeine relieves a cough nearly as well as morphine.

Many substances having actions intermediate between those of morphine and of codeine have been introduced, but there is no satisfactory evidence that any one of these is capable of replacing morphine and codeine with advantage. Those that have the full action of morphine are also habit forming, and those that are not habit forming are not essentially superior to codeine for the relief of coughing. Von Schroeder[11] recommended the use of several, such as codeine, peronin and morphine, alternately.

Heroin was introduced as a harmless substitute for morphine, but it is more toxic than morphine and gives rise to addiction which is more difficult to combat than that of morphine itself, and it has no advantages over morphine that justify its continued use. Among the substances that have been introduced with claims more or less similar to those of heroin are eucodal, dilaudid and dicodid. The results of a questionnaire sent out by Wolff[15] show that all of these substances give rise to addiction, and this is true of all substances, such as pantopium hydrochloricum and narcophin, which contain morphine. They have no obvious advantage over morphine in the treatment of coughing. It is possible that dilaudid may have less tendency to cause addiction than morphine, but available data are insufficient to permit of a final conclusion.

11. von Schroeder, W.: Ueber den Husten der Phthisiker und die therapeutische Verwendbarkeit des Peronins gegen denselben, Therap. Monatsh. **11**: 4, 1897.
12. Useful Drugs, ed. 8, Chicago, American Medical Association, 1930, p. 106.
13. Murrell, W.: On the Action of Apomorphine and Apocodeine, with Reference to Their Value as Expectorants in the Treatment of Chronic Bronchitis, Brit. M. J. **1**: 452, 1891.
14. Mayor, A.: La péronine, son action sur la toux, Rev. méd. de la Suisse Rom. **18**: 315, 1898.
15. Wolff, P.: Zur Behandlung und Bekaempfung der Alkaloidsuchten, Deutsche med. Wchnschr. **54**: 7 (Jan. 6), 51 (Jan. 13), 134 (Jan. 27), 224 (Feb. 10), 266 (Feb. 17), 349 (March 2), 387 (March 9) 1928.

SUMMARY AND CONCLUSION

A thorough consideration of the causes of coughing and its rational treatment will convince one that morphine itself has only a limited field of usefulness in the treatment of coughing in the great majority of cases, and that the far safer codeine may be used with advantage in most cases in which simple measures do not cause relief.

414 East Twenty-Sixth Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS APPROVED THE FOLLOWING ARTICLE.

H. A. CARTER, Secretary.

EDUCATION IN PHYSICAL THERAPY

The Council on Physical Therapy is engaged on a program intended to lead to fuller appreciation of the importance of physical therapy in the treatment of disease. One of the chief activities of the Council has been the publication in these columns of a series of articles intended to elucidate the physical and physiologic bases on which the various divisions of physical therapy depend for their efficiency, and also to afford an outline as to how the several measures therewith concerned should be conducted.

In these articles emphasis has been placed on the fundamentals of the general field of physical therapy; namely, the use of heat, massage, exercise, passive motion and postural rehabilitation. Reference to limitations and dangers has been included. Other activities of the Council have been concerned with the advertising of apparatus and methods alleged to be of value in various conditions, somewhat along the lines of the activities of the Council on Pharmacy and Chemistry. The Council on Physical Therapy has also devoted time to consideration of maximal and minimal standards of education in the field of physical therapy for premedical and medical students. Instruction along this line is already in force in some institutions, and it is desirable that, as opportunity permits, other institutions plan to include this subject in their curriculums. Steps have been taken to further the adequate training of physical therapy technicians, since a relatively small number of schools and institutions now undertake such work.

It is the belief of the Council that the publication of the articles already contributed, and those to follow, will excite a useful amount of interest among the profession and lead to better care of many medical and surgical conditions. It is further the intention of the Council that these articles, when completed, be published in book form at a nominal cost, comparable to New and Nonofficial Remedies and the Handbook of Therapy. It is obvious, however, that the publication of such a series of articles can lead only to long range familiarity with the field of physical therapy, in which, as in most other phases of medicine, a more intimate experience is necessary for evaluation and use. It is clear, therefore, that there remains a field within the medical profession for which, so far, little or no provision has been made; namely, that of extending to practitioners at large throughout the country information of a more or less practical and graphic nature, preferably through the medium of personal contacts. True, at a few institutions postgraduate work in the field of physical therapy is available, but the total number of physicians who can afford the time for such an enterprise is relatively limited. There can be no question of the desirability of additionally extending to the profession as a whole, especially in those regions not in touch with the teaching centers of medicine, a working knowledge of the general principles underlying physical therapy and the indications for its employment. There are perhaps few fields of therapy today in this country which would yield a greater reward in terms of persons now living than that of extending more widely the help which the various phases of physical therapy can yield in conditions suited to their employment.

The Council on Physical Therapy is not a pedagogic body and is not in a position to conduct a compaign to this end. Experience has already shown, however, that it is possible for practical information, and even demonstrations, in connection with the field of physical therapy to be extended to the profession through the various county, state and other medical societies throughout the country. It has been found possible in Philadelphia, New York and elsewhere to arrange for a series of addresses or demonstrations or both on various phases, or on the whole field, of physical therapy over periods varying from a few hours to a week or more. Experience has further shown that a program of this general nature arouses much interest and is usually rewarded by a large audience. The Council appreciates that the greater the need for medical society activity of this nature, the greater the probable difficulty of inaugurating it; and this is true, doubtless, in direct proportion to the removal of a given society from large medical centers. However, there is also a great need for activities of the same kind in many large cities and even in some medical centers. The Council on Physical Therapy therefore directs the attention of the medical profession to the importance of meetings of this kind; to the complete practicability of such efforts, as has already been demonstrated; and to the willingness of the Council to assist in such enterprises by furnishing general advice as to programs and the suggestion of suitable personnel.

Through the extensive files of the Association, the secretary of the Council is in a position to submit names of individuals interested or qualified in various phases of the field of physical therapy who are geographically available to any particular medical group or organization contemplating such a program. The details of such a program will necessarily be conditioned by the amount of emphasis and time which it is desirable or possible to devote to the subject in general. For most medical societies contemplating such a step, the subject should be approached through a consideration of the physiologic effects of heat, massage and exercise; some demonstration of the methods of obtaining these effects, including the active demonstration of massage on a living subject; a consideration of body mechanics, muscle training and postural rehabilitation; and, finally, consideration of the field of radiology in its various phases, including ultraviolet radiation, the Roentgen rays and radium. It is not to be supposed that a survey of the field of physical therapy such as this will fully equip practitioners to understand and utilize it. It is believed, however, that appreciation would be sharply awakened, among those attending meetings planned along these lines, to the fact that the field of physical therapy is one of the most important in the domain of therapeutics; and that extension of aid of this nature to the many persons needing it would be definitely hastened.

STATE BOARD STATISTICS FOR 1930

ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION OF RESULTS OF STATE BOARD EXAMINATIONS

All of the forty-eight states and the District of Columbia, Alaska, the Canal Zone, Hawaii and Porto Rico contributed official reports for the compilation of the data presented here. Included in these statistics are figures from five homeopathic boards and from the eclectic board of Arkansas. In the latter part of the article are reports from the seven basic science boards and the National Board of Medical Examiners. Every effort has been made to insure accuracy. The officers of the examining boards deserve much praise for the completeness of their reports.

TOTAL REGISTRATION FOR 1930

There were 7,548 physicians who secured licenses to practice medicine and surgery in 1930 in the United States and its territories.

A comparison of the number of candidates licensed by examination and by reciprocity or endorsement of credentials is shown in table 1. There were 5,190 physicians licensed by examination as compared with 2,358 by reciprocity and endorsement of credentials. Thirty-one physicians were licensed by "special exemption." Twelve of these were in the District of Columbia, being physicians in one of the government services;[1] those in Maine, Maryland, New York, North Dakota, Wyoming and the territories were licensed without examination on the basis of their diplomas, or credentials.

Reference to table 1 shows that California, Colorado, Illinois, Massachusetts and Texas licensed the greatest number of poorly qualified candidates. Mention of this will be made later. The other states licensed few of such candidates.

PHYSICIANS EXAMINED IN 1930

The grand total for all the states and territories and the number of candidates passed and failed as shown in table A are interesting. In 1930 there were 5,507 candidates examined, as compared with 5,695 in 1929. Of these, 5,190 passed and 317 failed (5.8 per cent). The proportion of failures is again lower than in the previous year, when it was 6.4 per cent. Furthermore, it will be shown that the candidates were better qualified, not that the examining boards were more lenient. These candidates came from sixty-four medical colleges in the United States,[2] from nine Canadian medical schools, from fifty-six foreign medical colleges, from seven "nondescript" or unrecognized colleges and from twenty-nine schools now out of existence.[3] There were 210 Canadian graduates examined, 10 per cent of whom failed, and 167 foreign graduates, of whom 44.9 per cent failed. Of 137 osteopaths examined for licenses to practice as physicians and surgeons, 101 passed; of 134 graduates of unrecognized medical schools, 82 passed; and of 6 undergraduates examined, 4 passed.

1. In 1929, when the District of Columbia Commission on Medical Licensure requested all physicians to be relicensed, these were granted licenses by special permission of the commission.

2. There are seventy-six medical schools in the United States approved by the American Medical Association. Eleven of them give only the first two years of the medical course. The remaining one, Duke University School of Medicine, has as yet had no graduates.

3. Listed as "Miscellaneous" medical colleges.

The number of Canadian applicants again increased in 1930 over the preceding year (210 as compared with 159) but the number of foreign applicants diminished (167 as compared with 214). The recent requirement of citizenship by some states before a license can be issued may be one of the factors responsible for this decrease. Of the 6 undergraduates examined by state boards in 1930, 4 were examined and passed in Kentucky but were granted only "limited" licenses. A new provision of the Kentucky medical practice act permits undergraduates to practice in isolated districts under

(CONTINUED ON PAGE 1390)

TABLE 1.—*Registration by State Boards During 1930*

States	By Examination				By Reciprocity, Endorsement of Credentials					Total Registered
	Graduates of Medical Schools	Nongraduates	Graduates of Unrecognized Colleges	Osteopaths Licensed as Phys. and Surgs.	Graduates of Medical Schools	Nongraduates	Graduates of Unrecognized Colleges	Osteopaths Licensed as Phys. and Surgs.	Special Exemption	
Alabama	27	..	..	..	37	..	..	..	..	64
Arizona	19	..	..	..	36	..	..	..	..	55
Arkansas	24	..	1	..	21	..	..	..	..	46
California	268	..	1	57	243	..	..	..	..	569
Colorado	37	..	3	12	40	..	..	..	..	92
Connecticut	50	..	..	1	39	..	..	..	..	90
Delaware	7	..	..	..	11	..	..	..	..	18
Dist. Columbia	34	..	..	..	11	..	1	..	12	58
Florida	71	..	..	..	0	..	..	..	..	71
Georgia	72	..	..	..	12	..	..	..	..	84
Idaho	7	..	..	..	9	..	..	..	..	16
Illinois	363	..	25	..	119	..	..	..	..	507
Indiana	116	..	..	..	37	..	..	..	..	153
Iowa	112	..	..	..	45	..	..	..	..	157
Kansas	75	..	..	..	34	..	..	..	..	109
Kentucky	71	4	..	..	33	..	..	..	..	108
Louisiana	99	..	..	..	10	..	..	..	..	109
Maine	22	..	..	..	13	..	1	..	1	37
Maryland	120	..	..	..	26	..	..	..	1	147
Massachusetts	149	..	50	31	44	..	..	..	..	274
Michigan	302	..	..	..	92	..	..	..	..	394
Minnesota	175	..	..	..	26	..	..	..	..	201
Mississippi	31	..	..	..	21	..	..	..	..	52
Missouri	149	..	..	..	71	..	1	..	..	221
Montana	13	..	..	..	15	..	..	..	..	28
Nebraska	65	..	..	..	7	..	..	..	..	72
Nevada	2	..	..	..	15	..	..	..	..	17
New Hampshire	1	..	..	..	27	..	..	..	..	28
New Jersey	82	..	..	..	185	..	..	..	..	267
New Mexico	0	..	..	..	31	..	..	..	..	31
New York	807	..	..	..	239	..	..	..	11	1,057
North Carolina	85	..	..	..	29	..	..	..	..	114
North Dakota	16	..	..	..	5	..	..	..	1	22
Ohio	228	..	..	..	113	..	..	..	..	341
Oklahoma	52	..	..	..	45	..	..	..	..	97
Oregon	32	..	..	..	31	..	1	..	..	64
Pennsylvania	421	..	..	..	42	..	..	..	..	463
Rhode Island	71	..	1	..	4	..	..	..	..	76
South Carolina	37	..	..	..	5	..	..	..	..	42
South Dakota	17	..	..	..	13	..	..	..	..	30
Tennessee	155	..	..	..	19	..	..	..	..	174
Texas	147	..	..	..	192	..	3	51	..	393
Utah	10	..	..	..	7	..	..	..	..	17
Vermont	19	..	..	..	8	..	..	..	..	27
Virginia	122	..	..	..	28	..	..	..	..	150
Washington	47	..	..	..	45	..	..	..	..	92
West Virginia	41	..	..	..	26	..	..	..	..	67
Wisconsin	98	..	..	..	93	..	..	1	..	192
Wyoming	4	..	..	..	8	..	..	..	1	13
U. S. Territories and Possessions	31	..	1	..	6	..	..	..	4	42
Totals	5,003	4	82	101	2,268	0	7	52	31	7,548
	5,190				2,358					

Marginal Number	NAME OF COLLEGE	1 Alabama P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 Dist. Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F	22 Minnesota P	F	Marginal Number
	ARKANSAS																																													
1	University of Arkansas School of Medicine			2	0	23	0																	1	0									4	0											1
	CALIFORNIA																																													
2	College of Medical Evangelists							49	4									1	0																			1	0			3	0			2
3	Stanford University School of Medicine							35	0															1	0																			3
4	University of California Medical School							49	0																															1	0					4
	COLORADO																																													
5	University of Colorado School of Medicine							11	0	31	0																			1	0															5
	CONNECTICUT																																												
6	Yale University School of Medicine			1	0							10	0			1	0	1	0															1	0			2	0					6
	DISTRICT OF COLUMBIA																																												
7	Georgetown University School of Medicine							1	0			3	0	1	0	9	0																			1	0	2	0	3	0			7
8	George Washington University Medical School			1	0							3	0			8	0							1	0													8	0			1	0			8
9	Howard University School of Medicine	1	0	1	0									1	1	3	0			2	0			1	1					4	0			1	0			8	0					9
	GEORGIA																																												
10	Emory University School of Medicine	2	0													1	0	10	0	32	0													1	0									10
11	University of Georgia Medical Department																	3	0	30	0																							11
	ILLINOIS																																												
12	Loyola University School of Medicine							2	0															69	9	2	0															3	0	1	0	12
13	Northwestern University Medical School	1	0	4	0			16	1			1	0					1	0			2	0	52	1	2	0	3	0	3	0			2	0					1	0	4	0	9	0	13
14	University of Chicago, Ogden Grad. Sch. of Med																																										1	0			14
15	University of Chicago, Rush Medical School	3	0					18	0			1	0					1	0			1	0	82	4	1	0	2	0	3	0			1	0					2	0	14	0	9	0	15
16	University of Illinois College of Medicine			1	0			6	2	1	0											1	0	107	3	1	0					1	0					1	0					1	0	16
	INDIANA																																												
17	Indiana University School of Medicine																	2	0							100	0													1	0			1	0	17
	IOWA																																												
18	State University of Iowa College of Medicine			1	0			2	0																			93	0											2	0			3	0	18
	KANSAS																																												
19	University of Kansas School of Medicine							1	0																					42	0							1	0					19
	KENTUCKY																																												
20	University of Louisville School of Medicine	2	0					3	0									1	1			1	0											66	3					2	0	1	0	1	0	20
	LOUISIANA																																												
21	Tulane University of Louisiana School of Medicine	4	0	1	0			2	0									7	0															65	0			1	0			1	0			21
	MARYLAND																																												
22	Johns Hopkins University School of Medicine			2	0			1	0							2	0	1	0							1	0							1	0			41	0	2	0	3	0			22
23	Univ. of Md. School of Med. & College of P. & S.											2	0					1	1																			43	0					2	0	23
	MASSACHUSETTS																																												
24	Boston University School of Medicine											1	0					2	0							1	0	1	0							3	0	1	0	19	0	1	0			24
25	Harvard University Medical School							4	0	1	0	1	0			1	0	3	0	3	0			2	1			1	0	1	0					4	0			13	0	4	0	3	0	25
26	Tufts College Medical School							2	0			7	0					1	0					0	1											8	0	1	0	56	0	1	0			26
	MICHIGAN																																												
27	Detroit College of Medicine and Surgery																	1	0																							52	0	1	0	27
28	University of Michigan Medical School													1	0											1	0															162	0	2	0	28
	MINNESOTA																																												
29	University of Minnesota Medical School							4	1															2	0			3	0	1	0			1	0							2	0	107	0	29
	MISSOURI																																												
30	St. Louis University School of Medicine			2	0			6	1			1	0											2	0	1	0					1	0							1	0	3	0	1	0	30
31	Washington University School of Medicine							4	1									2	0					6	0	1	0							2	0									31
	NEBRASKA																																												
32	Creighton University School of Medicine							9	3																					1	0	13	0									2	0	32
33	University of Nebraska College of Medicine	1	0					5	1	1	0					1	0					1	0	2	0							4	0							2	0					33
	NEW YORK																																												
34	Albany Medical College																													1	0															34
35	Columbia University College of Phys. & Surg															1	0	2	0	1	0			1	0							1	0					1	0			3	0			1	0	35
36	Cornell University Medical College							1	0									1	0																			1	0							36
37	Long Island College of Medicine							1	0									1	0											1	0															37
38	New York Homeo. Med. Coll. and Flower Hospital																							1	0															1	0					38
39	Syracuse University College of Medicine																																										1	0	39
40	University and Bellevue Hospital Medical College							1	0			1	0					1	0																											40
41	University of Buffalo School of Medicine																	1	0					1	0															2	0	1	0	1	0	41
42	University of Rochester School of Medicine							1	0																													1	0							42
	OHIO																																												
43	Ohio State University College of Medicine																																									1	0			43
44	University of Cincinnati College of Medicine							2	1							1	0							1	0							1	0											44
45	Western Reserve University School of Medicine							1	0																																			1	0	45
	OKLAHOMA																																												
46	University of Oklahoma School of Medicine							2	0																							1	0													46
	OREGON																																												
47	University of Oregon Medical School							8	1													1	0	1	0	1	0																	1	0	47
	PENNSYLVANIA																																												
48	Hahnemann Medical College and Hospital of Phila													2	0			1	0																			5	0	1	0					48
49	Jefferson Medical College of Philadelphia	1	0									2	0	1	0	1	0	3	0	1	0			1	0									1	0			2	0	1	0	2	0	1	0	49
50	Temple University School of Medicine											1	1	1	0																							1	0	1	0			1	0	50
51	University of Pennsylvania School of Medicine	2	0					4	1	1	0	2	0											1	0	1	0									1	0			1	0			5	0	51
52	University of Pittsburgh School of Medicine																																											1	0	52
53	Woman's Medical College of Pennsylvania							1	0			1	0																											1	0					53
	SOUTH CAROLINA																																												
54	Medical College of the State of South Carolina	1	0													1	0	1	0	1	0																							1	0	54
	TENNESSEE																																												
55	Meharry Medical College							1	0									2	0	2	0			1	0									4	0											55
56	University of Tennessee College of Medicine	4	0			1	0											1	0					1	0									2	0											56
57	Vanderbilt University School of Medicine	2	0									1	0					4	0																											57
	TEXAS																																												
58	Baylor University College of Medicine	1	0	2	0																													8	0											58
59	University of Texas College of Medicine																																											1	0	59
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

P = Passed; F = Failed.

| Marginal Number | 23 | | 24 | | 25 | | 26 | | 27 | | 28 | | 29 | | 30 | | 31 | | 32 | | 33 | | 34 | | 35 | | 36 | | 37 | | 38 | | 39 | | 40 | | 41 | | 42 | | 43 | | 44 | | 45 | | 46 | | 47 | | 48 | | 49 | | 50 | | | | | | | | | | | | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist. Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	VERMONT																																											
60	University of Vermont College of Medicine	...	...	...	...	...	...	...	...	...	...	2	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	0	...	...	...	...	60
	VIRGINIA																																											
61	Medical College of Virginia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	0	2	0	...	...	...	...	1	0	...	...	...	...	...	...	1	0	...	...	1	0	...	...	...	...	...	...	61
62	University of Virginia Department of Medicine	1	0	...	...	...	...	...	...	...	...	...	...	...	...	2	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	0	...	...	1	0	62
	WISCONSIN																																											
63	Marquette University School of Medicine	...	...	...	...	...	...	1	0	1	0	...	...	...	...	...	...	...	...	...	...	...	...	3	0	...	...	1	0	...	...	...	...	1	0	...	...	...	...	...	...	2	0	63
64	University of Wisconsin Medical School	...	...	...	...	...	...	1	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	0	1	0	...	...	1	0	...	...	...	...	...	...	...	...	1	0	1	0	64
	CANADA																																											
65	Dalhousie University Faculty of Medicine	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	0	...	...	...	...	...	...	...	...	2	1	3	0	...	...	65
66	Laval University Faculty of Medicine	...	...	...	...	...	...	...	...	...	...	1	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...	...	...	66
67	McGill University Faculty of Medicine	...	...	...	...	2	1	...	...	4	0	...	...	...	...	...	...	...	...	...	...	...	...	2	0	1	0	...	...	...	...	...	...	2	0	...	...	3	0	...	...	1	0	67
68	Queen's University Faculty of Medicine	...	1	0	...	1	0	...	...	0	1	...	...	1	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	0	5	0	1	0	68
69	University of Alberta Faculty of Medicine	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	0	1	0	69
70	University of Manitoba Faculty of Medicine	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	0	...	...	1	0	...	...	...	...	...	...	...	...	1	0	...	...	...	...	70
71	University of Montreal Faculty of Medicine	...	...	...	...	...	...	...	...	1	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	3	...	...	...	...	71
72	University of Toronto Faculty of Medicine	...	...	...	...	1	0	...	...	1	0	...	...	...	...	...	...	2	0	...	...	...	...	2	2	...	...	...	...	...	...	...	...	1	0	1	0	...	...	4	0	14	0	1	0	72
73	University of Western Ontario Medical School	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	0	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	0	...	...	73
74	Foreign Colleges	...	...	...	...	...	...	9	9	1	0	2	1	...	...	...	...	4	2	...	...	...	...	13	6	...	...	...	...	...	...	...	...	0	1	1	1	4	2	3	0	...	...	74
75	Miscellaneous Medical Colleges	1	1	...	...	...	...	0	2	...	...	...	...	...	...	...	...	5	4	...	...	...	...	0	2	...	...	1	0	1	0	1	0	2	1	...	...	...	...	2	0	2	0	1	0	75
76	Undergraduates, Osteopaths and Graduates of Nondescript Colleges	...	...	...	...	1	0	58	2	15	0	1	7	...	...	...	...	...	...	...	...	...	...	25	7	...	...	...	...	...	...	4	0	...	...	...	...	...	...	71	...	...	...	76
77	Totals by states	28		19		25		357		52		61		8		34		79		72		7		426		116		112		75		78		100		23		121		308		302		175		77
78	Totals—Examined—Passed	27		19		25		326		52		51		7		34		71		72		7		388		116		112		75		75		99		22		120		270		302		175		78
79	Totals—Examined—Failed	1		0		0		31		0		10		1		0		8		0		0		38		0		0		0		3		1		1		1		38		0		0		79
80	Percentage of Failures	3.6		0.0		0.0		8.7		0.0		16.4		12.5		0.0		10.1		0.1		0.0		8.9		0.0		0.0		0.0		3.8		1.0		4.4		0.8		25.3		0.0		0.0		80
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

P = Passed; F = Failed.

(CONTINUED FROM PAGE 1387)

certain specified conditions. The "limited" license is valid for five years, when the applicant must take another examination. In Mississippi, two undergraduates were permitted to take the examination for medical licensure by a special act of the legislature, but both of them failed.

Table B supplements table A by permitting inspection of comparative figures. The first column shows how graduates of existing schools of all years fared in the examinations in 1930. Here also the conclusions drawn from the tabulations in table A are confirmed. The record of Jefferson Medical College of Philadelphia is noteworthy, 157 of its graduates having passed before the examining boards of twenty-eight states and none having failed. However, all but nine of this number were recent graduates.

The next three columns indicate strikingly that the more recent the graduate, the greater the equanimity with which he can approach the state medical examinations. The column headed "Graduates of 1925 and Previous" is flanked on either side with statistics which bear out this conclusion. Physicians who completed their education before 1925 failed to the extent of 23.8 per cent. Graduates between 1926 and 1930 exhibited far greater ability, for only 2.9 per cent of their number did not pass; 1930 graduates, with only 1.5 per cent of failures, due to the obvious advantage of being fresh from medical school, were the best prepared of all. This group also demonstrated its superiority over 1929 graduates, among whom there were 2.4 per cent of failures.

The record of graduates of Canadian medical schools is not as good for 1930 as it was for 1929. More candidates were examined, and a greater percentage failed. However, graduates of medical schools in the dominion still have a far better chance than graduates of foreign

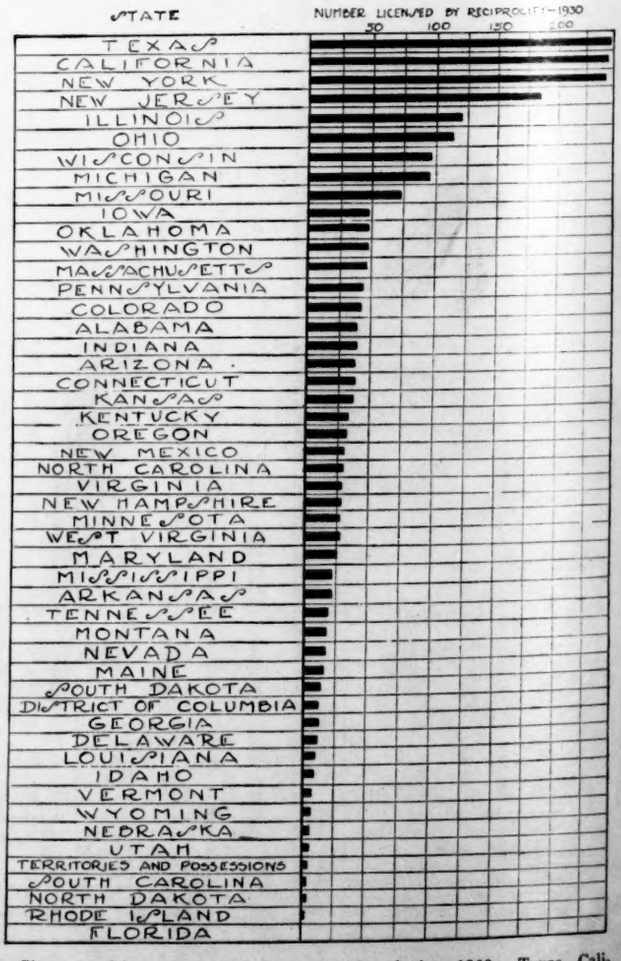

Chart 1.—Licenses granted by reciprocity during 1930. Texas, California, New York and New Jersey are far in the lead.

| Marginal Number | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | 50 U. S. Territories and Possessions | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. in | Marginal Number |
|---|---|---

Marginal No.	NAME OF COLLEGE	Graduates of All Years					Graduates from 1926 to 1930					Graduates of 1925 and Previous					Graduates of 1930 Only					Marginal No.
		Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	
	ARKANSAS																					
1	University of Arkansas School of Medicine	34	33	1	2.9	7	34	33	1	2.9	7	0	0	0	0.0	0	28	28	0	0.0	4	1
	CALIFORNIA																					
2	College of Medical Evangelists	67	63	4	5.9	9	67	63	4	5.9	9	0	0	0	0.0	0	57	53	4	7.0	6	2
3	Stanford University School of Medicine	37	37	0	0.0	3	37	37	0	0.0	3	0	0	0	0.0	0	34	34	0	0.0	1	3
4	University of California Medical School	53	53	0	0.0	5	53	53	0	0.0	5	0	0	0	0.0	0	48	48	0	0.0	1	4
	COLORADO																					
5	University of Colorado School of Medicine	51	51	0	0.0	9	47	47	0	0.0	7	4	4	0	0.0	3	34	34	0	0.0	2	5
	CONNECTICUT																					
6	Yale University School of Medicine	32	30	2	6.2	8	28	26	2	7.1	5	4	4	0	0.0	4	15	15	0	0.0	2	6
	DISTRICT OF COLUMBIA																					
7	Georgetown University School of Medicine	84	77	7	8.3	15	83	76	7	8.4	15	1	1	0	0.0	1	25	24	1	4.0	9	7
8	George Washington University Medical School	49	49	0	0.0	15	45	45	0	0.0	12	4	4	0	0.0	4	18	18	0	0.0	7	8
9	Howard University School of Medicine	69	60	9	13.0	15	67	58	9	13.4	13	2	2	0	0.0	2	28	27	1	3.6	7	9
	GEORGIA																					
10	Emory University School of Medicine	54	54	0	0.0	10	52	52	0	0.0	9	2	2	0	0.0	2	44	44	0	0.0	7	10
11	University of Georgia Medical Department	36	36	0	0.0	5	36	36	0	0.0	5	0	0	0	0.0	0	32	32	0	0.0	2	11
	ILLINOIS																					
12	Loyola University School of Medicine	103	90	13	12.6	11	102	89	13	12.7	10	1	1	0	0.0	1	92	81	11	12.0	9	12
13	Northwestern University Medical School	133	131	2	1.5	27	128	126	2	1.6	24	5	5	0	0.0	5	97	95	2	2.1	19	13
14	University of Chicago, Ogden Grad. School of Med.	1	1	0	0.0	1	1	1	0	0.0	1	0	0	0	0.0	0	1	1	0	0.0	1	14
15	University of Chicago, Rush Medical College	183	177	6	3.3	26	176	170	6	3.4	26	7	7	0	0.0	4	112	109	3	2.7	19	15
16	University of Illinois College of Medicine	138	132	6	4.3	17	134	129	5	3.7	15	4	3	1	25.0	3	114	110	4	3.5	13	16
	INDIANA																					
17	Indiana University School of Medicine	108	108	0	0.0	7	107	107	0	0.0	6	1	1	0	0.0	1	100	100	0	0.0	1	17
	IOWA																					
18	State University of Iowa College of Medicine	111	111	0	0.0	12	110	110	0	0.0	12	1	1	0	0.0	1	96	96	0	0.0	4	18
	KANSAS																					
19	University of Kansas School of Medicine	51	51	0	0.0	8	51	51	0	0.0	8	0	0	0	0.0	0	48	48	0	0.0	5	19
	KENTUCKY																					
20	University of Louisville School of Medicine	95	89	6	6.3	16	93	88	5	5.4	15	2	1	1	50.0	1	77	75	2	2.6	8	20
	LOUISIANA																					
21	Tulane University of Louisiana School of Medicine	110	108	2	1.8	14	106	105	1	0.9	13	4	3	1	25.0	3	90	90	0	0.0	8	21
	MARYLAND																					
22	Johns Hopkins University School of Medicine	65	65	0	0.0	15	59	59	0	0.0	13	6	6	0	0.0	6	34	34	0	0.0	4	22
23	Univ. of Md. School of Med. & College of P. & S.	92	91	1	1.1	13	89	89	0	0.0	11	3	2	1	33.3	2	61	61	0	0.0	6	23
	MASSACHUSETTS																					
24	Boston University School of Medicine	46	43	3	6.5	12	42	39	3	7.1	10	4	4	0	0.0	3	23	22	1	4.4	7	24
25	Harvard University Medical School	80	79	1	1.2	23	65	65	0	0.0	19	15	14	1	6.7	9	13	13	0	0.0	5	25
26	Tufts College Medical School	121	116	5	4.1	13	109	106	3	2.9	11	12	10	2	8.3	6	46	46	0	0.0	6	26
	MICHIGAN																					
27	Detroit College of Medicine and Surgery	55	55	0	0.0	4	54	54	0	0.0	3	1	1	0	0.0	1	52	52	0	0.0	1	27
28	University of Michigan Medical School	184	183	1	0.5	10	179	179	0	0.0	9	5	4	1	20.0	4	154	154	0	0.0	2	28
	MINNESOTA																					
29	University of Minnesota Medical School	135	134	1	0.7	13	133	132	1	0.8	13	2	2	0	0.0	1	83	82	1	1.2	7	29
	MISSOURI																					
30	St. Louis University School of Medicine	121	119	2	1.7	18	120	118	2	1.7	17	1	1	0	0.0	1	86	84	2	4.7	8	30
31	Washington University School of Medicine	96	94	2	2.1	16	91	90	1	1.1	14	5	4	1	20.0	4	59	58	1	1.7	7	31
	NEBRASKA																					
32	Creighton University School of Medicine	58	54	4	6.9	16	55	51	4	7.3	15	3	3	0	0.0	3	35	33	2	2.9	8	32
33	University of Nebraska College of Medicine	77	75	2	2.6	14	76	74	2	2.6	14	1	1	0	0.0	1	35	35	0	0.0	5	33
	NEW YORK																					
34	Albany Medical College	19	19	0	0.0	2	19	19	0	0.0	2	0	0	0	0.0	0	18	18	0	0.0	1	34
35	Columbia University College of Phys. and Surgs.	95	94	1	1.1	15	86	85	1	1.2	9	9	9	0	0.0	7	62	61	1	1.6	3	35
36	Cornell University Medical College	46	44	2	4.3	6	45	43	2	4.6	6	1	1	0	0.0	1	32	30	2	6.2	2	36
37	Long Island College of Medicine	96	93	3	3.1	6	94	91	3	3.2	4	2	2	0	0.0	2	83	81	2	2.4	1	37
38	New York Homeo. Med. Coll. and Flower Hospital	87	84	3	3.4	3	83	82	1	1.2	2	4	2	2	50.0	2	80	79	1	1.2	1	38
39	Syracuse University College of Medicine	43	43	0	0.0	5	43	43	0	0.0	5	0	0	0	0.0	0	36	36	0	0.0	2	39
40	University and Bellevue Hospital Medical College	120	119	1	0.8	7	120	119	1	0.8	7	0	0	0	0.0	0	110	109	1	0.9	2	40
41	University of Buffalo School of Medicine	77	74	3	3.8	8	75	72	3	4.0	6	2	2	0	0.0	2	65	62	3	3.1	2	41
42	University of Rochester School of Medicine	10	10	0	0.0	4	10	10	0	0.0	4	0	0	0	0.0	0	5	5	0	0.0	3	42
	OHIO																					
43	Ohio State University College of Medicine	61	61	0	0.0	4	60	60	0	0.0	8	1	1	0	0.0	1	57	57	0	0.0	1	43
44	University of Cincinnati College of Medicine	68	67	1	1.5	10	68	67	1	1.5	10	0	0	0	0.0	0	63	62	1	1.6	8	44
45	Western Reserve University College of Medicine	61	60	1	1.6	7	59	58	1	1.7	6	2	2	0	0.0	2	49	49	0	0.0	1	45
	OKLAHOMA																					
46	University of Oklahoma School of Medicine	50	50	0	0.0	5	50	50	0	0.0	5	0	0	0	0.0	0	47	47	0	0.0	3	46
	OREGON																					
47	University of Oregon Medical School	51	49	2	3.9	12	50	48	2	4.0	11	1	1	0	0.0	1	18	18	0	0.0	2	47
	PENNSYLVANIA																					
48	Hahnemann Medical College and Hospital of Phila.	77	76	1	1.3	8	76	75	1	1.3	7	1	1	0	0.0	1	12	12	0	0.0	3	48
49	Jefferson Medical College of Philadelphia	157	157	0	0.0	28	148	148	0	0.0	23	9	9	0	0.0	8	17	17	0	0.0	9	49
50	Temple University School of Medicine	53	51	2	3.8	9	52	50	2	3.8	9	1	1	0	0.0	1	10	10	0	0.0	1	50
51	University of Pennsylvania School of Medicine	146	144	2	1.4	25	141	139	2	1.4	23	5	5	0	0.0	4	8	8	0	0.0	6	51
52	University of Pittsburgh School of Medicine	69	65	4	5.8	4	68	65	3	4.4	3	1	0	1	100.0	1	14	14	0	0.0	2	52
53	Woman's Medical College of Pennsylvania	18	18	0	0.0	6	16	16	0	0.0	4	2	2	0	0.0	2	0	0	0	0.0	0	53
	SOUTH CAROLINA																					
54	Medical College of the State of South Carolina	40	40	0	0.0	8	37	37	0	0.0	7	3	3	0	0.0	3	32	32	0	0.0	2	54
	TENNESSEE																					
55	Meharry Medical College	57	53	4	7.0	12	55	51	4	7.3	12	2	2	0	0.0	2	41	41	0	0.0	5	55
56	University of Tennessee College of Medicine	95	95	0	0.0	9	95	95	0	0.0	9	0	0	0	0.0	0	87	87	0	0.0	6	56
57	Vanderbilt University School of Medicine	54	54	0	0.0	9	52	52	0	0.0	9	2	2	0	0.0	1	41	41	0	0.0	4	57
	TEXAS																					
58	Baylor University College of Medicine	91	91	0	0.0	7	90	90	0	0.0	7	1	1	0	0.0	1	87	87	0	0.0	5	58
59	University of Texas School of Medicine	49	49	0	0.0	4	49	49	0	0.0	4	0	0	0	0.0	0	43	43	0	0.0	1	59
	VERMONT																					
60	University of Vermont College of Medicine	32	29	3	9.4	5	27	24	3	11.1	4	5	5	0	0.0	2	13	13	0	0.0	2	60
	VIRGINIA																					
61	Medical College of Virginia	107	104	3	2.8	15	103	100	3	2.9	14	4	4	0	0.0	3	78	76	2	2.5	8	61
62	University of Virginia Department of Medicine	56	56	0	0.0	12	54	54	0	0.0	10	2	2	0	0.0	2	45	45	0	0.0	3	62
	WISCONSIN																					
63	Marquette University School of Medicine	58	58	0	0.0	11	58	58	0	0.0	11	0	0	0	0.0	0	51	51	0	0.0	8	63
64	University of Wisconsin Medical School	36	36	0	0.0	14	36	36	0	0.0	14	0	0	0	0.0	0	0	0	0	0.0	0	64

Marginal No.	NAME OF COLLEGE	Graduates of All Years: Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Graduates from 1926 to 1930: Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Graduates of 1925 and Previous: Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Graduates of 1930 Only: Number Examined	Number Passed	Number Failed	Per Cent Failed	Number of States	Marginal No.
	CANADA																					
65	Dalhousie University Faculty of Medicine	14	13	1	7.2	6	7	7	0	0.0	3	7	6	1	14.3	5	1	1	0	0.0	1	65
66	Laval University Faculty of Medicine	9	7	2	22.2	6	7	5	2	28.6	4	2	2	0	0.0	2	1	1	0	0.0	1	66
67	McGill University Faculty of Medicine	49	45	4	8.2	15	34	30	4	11.8	12	15	15	0	0.0	10	13	12	1	7.7	6	67
68	Queen's University Faculty of Medicine	34	29	5	14.7	11	31	26	5	16.1	9	3	3	0	0.0	3	5	4	1	20.0	2	68
69	University of Alberta Faculty of Medicine	7	7	0	0.0	4	7	7	0	0.0	4	0	0	0	0.0	0	2	2	0	0.0	1	69
70	University of Manitoba Faculty of Medicine	15	14	1	6.7	8	13	12	1	7.7	6	2	2	0	0.0	2	1	1	0	0.0	1	70
71	University of Montreal Faculty of Medicine	9	6	3	33.3	5	2	1	1	50.0	1	7	5	2	28.6	5	1	1	0	0.0	1	71
72	University of Toronto Faculty of Medicine	53	50	3	5.7	15	44	42	2	4.5	13	9	8	1	11.1	6	1	1	0	0.0	1	72
73	University of Western Ontario Medical School	20	18	2	10.0	5	14	14	0	0.0	4	6	4	2	33.3	4	8	8	0	0.0	2	73
74	Foreign Colleges	167	92	75	44.9	19	64	41	23	35.9	11	103	51	52	50.5	16	7	6	1	14.3	5	74
75	Miscellaneous Medical Colleges	45	30	15	33.3	18	2	2	0	0.0	2	43	28	15	35.0	17	0	0	0	0.0	0	75
76	Undergraduates, Osteopaths and Graduates of Nondescript Colleges	277	187	90	32.4	10	..	..	..	...	..	..	..	..	....	..	..	..	..	....	..	76
77	Totals by States	5507	....	...	...	..	4873	....	...	...	..	357	...	..	....	..	3215	....	..	....	..	77
78	Totals—Examined—Passed	....	5190	...	...	..	....	4731	...	...	..	...	272	..	....	..	....	3164	..	....	..	78
79	Totals—Examined—Failed	....	....	317	...	..	....	....	142	...	..	...	...	85	....	..	....	....	51	....	..	79
80	Percentage of Failures	....	....	...	5.8	..	....	....	...	2.9	..	...	...	..	23.8	..	....	....	..	1.5	..	80

TABLE 2.—*Total Registration (Examination, Reciprocity or Endorsement of Credentials) for the Last Five Years*

	1926: Examined Passed	Examined Failed	Reciprocity, Endorsement of Credentials and Special Exemption	1927: Examined Passed	Examined Failed	Reciprocity, Endorsement of Credentials and Special Exemption	1928: Examined Passed	Examined Failed	Reciprocity, Endorsement of Credentials and Special Exemption	1929: Examined Passed	Examined Failed	Reciprocity, Endorsement of Credentials and Special Exemption	1930: Examined Passed	Examined Failed	Reciprocity, Endorsement of Credentials and Special Exemption	Totals for 5 Yrs.: Examined	Reciprocity, Endorsement of Credentials and Special Exemption	Registered	Percentage Failed in Examination	Percentage Licensed by Reciprocity, Endorsement of Credentials and Special Exemption
Alabama	31	0	54	35	0	11	25	0	40	34	1	30	27	1	37	154	172	324	1.3	53.8
Arizona	12	1	20	10	3	24	13	2	36	11	1	46	19	0	36	72	162	227	9.7	71.3
Arkansas	29	0	25	48	1	9	42	0	18	51	0	26	25	0	21	196	99	294	0.5	33.7
California	275	29	255	320	21	328	371	20	225	393	40	268	326	31	243	1,826	1,319	3,004	7.7	44.2
Colorado	90	27	63	77	34	55	66	15	40	50	0	40	52	0	40	411	238	573	0.5	41.5
Connecticut	45	6	47	57	2	34	67	5	35	68	3	36	51	10	39	314	191	479	8.2	39.8
Delaware	7	1	5	2	0	7	10	0	10	11	0	6	7	1	11	39	39	76	5.1	51.3
District of Columbia	95	8	18	99	0	14	104	0	18	51	1	13	34	0	24	392	87	470	2.3	18.1
Florida	196	45	0	90	10	0	72	3	0	72	3	0	71	8	0	570	0	501	1.2	0.0
Georgia	78	0	26	67	0	22	91	0	19	78	0	11	72	0	12	386	90	476	0.0	18.9
Idaho	14	1	10	17	2	14	5	1	11	5	2	15	7	0	9	54	59	107	11.1	51.1
Illinois	410	39	61	379	38	107	345	30	112	381	22	113	388	38	119	2,0.0	512	2,416	8.1	21.2
Indiana	84	0	54	103	2	59	103	0	42	116	0	42	116	0	37	524	234	756	0.4	30.9
Iowa	92	0	40	91	0	30	110	1	34	100	0	35	112	0	45	506	184	689	0.2	26.7
Kansas	81	0	36	56	0	25	53	0	26	81	0	32	75	0	34	346	153	499	0.0	30.0
Kentucky	74	6	31	72	1	37	76	0	46	65	0	51	75	3	33	372	198	560	2.7	35.4
Louisiana	77	2	11	99	2	15	107	1	13	97	0	9	99	1	10	485	58	537	1.3	10.8
Maine	39	3	7	25	5	10	29	1	12	24	2	13	22	1	15	151	57	196	7.9	29.1
Maryland	106	2	28	96	5	28	116	4	31	106	0	26	120	1	27	536	140	684	1.8	20.6
Massachusetts	257	105	8	195	75	27	221	91	31	211	84	41	230	78	44	1,547	151	1,265	27.7	11.9
Michigan	227	2	94	217	1	79	253	2	90	266	1	101	302	0	92	1,271	456	1,721	0.5	26.5
Minnesota	152	0	62	137	0	46	156	0	47	155	0	39	175	0	26	775	220	995	0.0	22.2
Mississippi	18	2	27	21	0	20	24	0	29	27	0	23	31	2	21	125	120	241	0.3	49.4
Missouri	158	3	0	124	1	39	105	1	73	116	1	79	149	0	72	658	263	915	0.9	28.7
Montana	12	0	6	9	1	13	12	1	14	9	0	9	13	0	15	57	57	112	3.5	50.9
Nebraska	101	0	12	96	5	11	69	2	8	66	0	9	65	0	7	404	47	446	1.8	10.5
Nevada	2	0	17	7	1	17	6	3	10	2	2	15	2	0	15	25	74	93	24.0	79.6
New Hampshire	2	0	18	5	0	22	1	0	17	2	0	18	1	0	27	11	102	113	0.0	90.3
New Jersey	55	8	6	57	6	177	60	5	181	70	2	186	82	3	185	348	735	1,059	5.7	69.4
New Mexico	2	1	15	0	0	24	0	1	18	1	0	23	0	0	31	5	111	114	40.0	97.4
New York	883	124	156	896	111	176	835	123	226	900	143	252	807	108	250	4,930	1,060	5,381	12.2	19.7
North Carolina	93	0	33	91	0	38	69	4	32	97	8	45	85	5	29	452	177	612	3.6	29.9
North Dakota	16	2	12	16	2	3	14	1	10	17	5	3	16	2	6	91	34	113	13.2	30.1
Ohio	279	4	92	243	3	110	288	8	111	272	1	121	228	1	113	1,327	547	1,857	1.5	29.4
Oklahoma	49	0	29	50	0	54	54	0	39	54	0	45	52	0	45	259	212	471	0.0	45.0
Oregon	51	2	17	41	4	25	34	4	32	31	4	38	32	1	32	204	144	333	7.4	43.2
Pennsylvania	371	8	50	363	10	63	376	5	51	399	4	43	421	9	42	1,966	249	2,179	2.0	11.4
Rhode Island	26	4	0	28	3	0	25	3	3	50	0	2	72	2	4	213	9	210	5.6	4.3
South Carolina	44	4	3	37	1	12	46	0	12	29	0	9	37	0	5	198	41	234	2.5	17.5
South Dakota	17	0	9	10	0	9	12	0	11	11	0	15	17	0	13	67	57	124	0.0	46.8
Tennessee	136	0	14	133	0	18	129	0	22	153	0	19	155	0	19	706	92	798	0.0	11.5
Texas	124	5	207	133	2	151	141	5	171	148	0	206	147	0	246	705	981	1,674	1.7	58.6
Utah	14	1	29	5	1	9	4	0	10	8	0	18	10	0	7	43	73	114	4.7	64.1
Vermont	38	1	5	22	0	8	31	0	4	31	1	11	19	0	8	143	36	177	1.4	20.3
Virginia	96	0	32	103	1	30	105	0	30	120	3	33	122	5	28	555	153	699	1.6	21.9
Washington	23	2	92	27	2	46	35	1	66	46	1	47	47	2	45	186	296	474	4.3	62.4
West Virginia	52	11	32	59	2	43	40	1	26	43	3	31	41	0	26	252	158	393	6.7	40.2
Wisconsin	104	3	35	38	1	48	72	1	61	79	6	62	98	0	94	402	300	691	2.7	43.4
Wyoming	3	1	11	2	0	17	1	0	11	0	1	15	4	0	9	12	63	73	16.7	86.3
U. S. Territories and Possessions	107	4	2	169	28	0	149	23	6	122	21	3	32	4	10	659	21	600	12.1	3.5
Totals	5,347	467		5,077	387		5,172	368		5,329	366		5,190	317						
Examined	5,814			5,464			5,540			5,695			5,507			28,020				
Reciprocity			1,916			2,164			2,220			2,373			2,358		11,032			
Registered	7,263			7,241			7,394			7,702			7,548					37,147		
Percentage failed in examination	8.0			7.1			6.7			6.4			5.7						6.8	
Percentage licensed by reciprocity	24.8			28.4			28.6			28.2			30.0							28.2

TABLE C.—*Physicians Registered Through Reciprocity and Endorsement by State Examining Boards During 1930*

Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
State	Total Registered in Each State	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Government Services	Nat. Bd. Med. Ex.	U. S. Territories	Canada
Alabama	37	..	..	..	..	..	..	..	..	..	8	..	1	..	..	..	1	3	..	1	..	..	..	5	..	..	..	..	..	1	..	..	2	..	..	2	..	..	..	1	..	9	..	..	..	..	..	..	..	..	1	..	..
Arizona	36	..	..	..	..	2	1	..	..	..	..	1	5	3	1	2	..	..	..	2	1	..	1	..	2	..	1	..	..	1	1	2	..	..	2	..	1	..	..	..	..	2	..	..	..	1	1	1	..	..	2	..	..
Arkansas	21	..	..	..	..	..	..	..	..	..	..	..	2	..	1	1	..	4	..	..	..	1	..	1	3	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	5	..	..	1	..	..	..	..	..	..	..	..
California	243	..	3	..	9	..	..	..	..	..	1	4	31	3	9	8	5	1	..	2	3	12	13	1	14	3	10	1	..	1	..	21	..	..	10	4	12	8	..	..	3	1	4	9	..	3	6	..	2	1	11	13	1	..
Colorado	40	..	..	1	3	..	..	..	..	..	..	..	7	..	2	4	..	..	..	3	..	2	..	1	1	..	5	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	1	..
Connecticut	39	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	1	4	..	..	..	..	..	..	..	1	..	..	12	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	1	..	2	1	..
Delaware	11	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	14	..	1
District of Columbia	12	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	12	1	..	..	..	..	..	..	1	..	..	..	..	..	2	..	1	..	..	1	..	..	..	..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	..	..	..	..
Idaho	9	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..
Illinois	119	1	..	..	4	..	..	..	..	..	..	..	..	6	11	..	2	1	1	..	..	10	5	..	19	..	5	..	..	..	..	..	1	1	5	3	..	4	..	..	..	5	3	1	..	2	..	2	5	..	7	15	..	..
Indiana	37	..	..	..	1	..	..	..	..	..	..	..	13	..	2	1	2	1	..	..	..	4	3	..	1	..	..	..	..	..	..	1	..	..	5	..	..	1	..	..	..	2	..	..	..	1	..	..	1	..	..	2	..	..
Iowa	45	1	..	..	..	2	..	..	..	..	..	..	9	1	..	3	1	2	..	..	..	1	..	..	3	1	9	..	..	..	..	..	..	..	3	..	..	..	..	..	..	2	1	2	..	1	..	..	1	..	..	..	..	..
Kansas	34	..	..	2	1	4	..	..	..	..	1	..	1	..	4	..	1	1	..	1	..	..	..	1	8	1	5	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	2	..	..
Kentucky	33	..	..	..	..	..	..	..	..	..	1	..	2	1	1	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Louisiana	10	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	1	..	..	..	..	..	..	..	..	..	8	1	1	..	..	..	..	..	9	..	..	..	..	1	..	..	..	3	..	1
Maine	14	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	1	..	..	..	..	1	..	..	2	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..
Maryland	26	..	..	..	2	1	..	..	5	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	1	1	..	1	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	3	..	..
Massachusetts	44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	3	..	..
Michigan	92	..	..	2	1	1	1	..	1	..	2	..	13	3	10	4	2	2	..	2	1	..	7	..	3	..	4	..	..	..	1	..	4	1	..	11	..	..	3	..	1	..	3	..	..	..	1	..	..	1	..	44	..	..
Minnesota	26	..	..	..	1	..	..	..	..	..	..	..	2	..	2	..	2	1	..	..	..	2	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	4	1	1	3	..	..	..	..
Mississippi	21	2	..	1	..	..	..	..	..	..	..	..	2	..	..	..	..	7	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	9	..	..
Missouri	72	..	..	3	..	..	..	..	..	..	2	..	10	..	6	17	3	..	..	..	..	2	2	..	..	..	4	..	..	..	..	1	..	..	1	..	..	1	..	..	..	4	1	..	1	1	..	..	..	..	1	..	..
Montana	15	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	4	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	1	..	13	..	..
Nebraska	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	..	..
Nevada	15	3	..	..	..	1	..	..	..	..	2	..	2	..	3	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..
New Hampshire	27	..	..	1	..	..	2	..	..	..	..	..	1	..	..	..	..	1	2	..	10	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
New Jersey	185	..	..	1	..	..	..	..	10	..	1	..	..	..	2	..	3	1	3	7	2	4	3	..	1	..	..	..	1	..	..	85	4	..	5	..	..	22	1	..	..	..	2	..	..	6	1	..	..	1	3	..	2	..	..
New Mexico	31	1	1	1	..	1	..	..	..	1	..	1	3	..	6	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	1	3	..	2	..	..	20	..	..
New York	239	1	..	..	5	1	6	1	3	2	3	..	8	6	3	..	2	..	1	18	9	3	8	..	2	1	2	..	1	6	..	..	9	..	20	..	..	9	1	3	..	10	2	..	2	10	2	1	3	..	..	62	7	6
North Carolina	29	1	..	..	..	..	..	..	..	2	1	..	1	1	..	..	..	..	..	3	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	2	3	..	..	1	..	..	..	..	..	7	..	..
North Dakota	5	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ohio	113	2	..	2	..	..	..	..	..	..	2	..	6	6	4	1	8	2	2	5	..	16	..	..	2	..	..	..	1	..	..	11	..	1	..	..	..	11	..	2	..	7	..	..	..	5	..	11	1	1	4	..	..
Oklahoma	45	..	..	2	..	..	..	..	..	..	..	..	2	..	4	2	5	2	..	..	..	2	..	2	5	..	4	..	..	..	..	2	..	1	2	..	..	..	..	..	..	4	2	..	..	1	..	..	..	..	1	2	..	..
Oregon	32	..	..	..	1	1	..	..	1	..	..	..	2	..	2	3	..	..	..	..	..	1	3	1	..	1	2	..	..	..	..	..	..	..	1	..	..	2	..	..	..	1	..	..	..	1	..	..	..	..	1	4	..	..
Pennsylvania	42	..	..	..	..	..	2	..	..	..	..	..	3	2	..	1	..	..	..	4	1	3	1	..	..	..	1	..	..	3	..	5	..	..	1	..	..	..	..	..	..	1	..	..	..	..	2	..	1	1	..	4	..	..
Rhode Island	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	11	..	..
South Carolina	5	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..
South Dakota	13	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	1	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tennessee	19	1	..	..	1	..	..	..	1	..	3	..	..	..	..	..	1	1	..	1	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	2	..	..
Texas	246	4	1	11	2	3	..	..	..	2	4	2	12	8	9	7	4	22	1	4	1	8	2	7	45	..	9	..	..	1	..	4	2	1	15	10	..	11	2	..	..	18	..	..	..	2	..	..	..	..	2	..	..
Utah	7	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Vermont	8	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Virginia	28	..	..	..	..	..	1	1	3	..	2	..	..	1	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Washington	45	..	..	..	8	..	..	..	..	..	..	..	..	..	2	..	1	..	..	1	..	3	8	1	2	3	2	..	..	..	..	..	3	..	..	..	..	1	..	..	..	5	1	..	..	..	..	1	..	..	2	2	2	..
West Virginia	26	..	..	..	..	..	..	..	1	..	1	..	1	2	..	1	2	..	..	4	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	..	..	..	..	..	1	2	..	..	..	1	..	..	7	..	..
Wisconsin	94	..	..	1	2	1	..	..	..	..	2	..	28	2	9	2	..	1	..	1	5	6	11	..	2	1	2	2	..	..	..	2	..	..	3	..	1	1	..	..	..	3	..	..	1	..	..	6	..	..	1	..	..
Wyoming	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..
U. S. Territories and Possessions	6	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	2,327	20	5	28	34	27	14	2	27	8	41	8	175	45	104	65	45	57	10	72	42	91	78	23	127	11	76	3	5	17	2	158	27	4	101	24	21	95	5	10	7	104	33	13	15	55	18	29	27	3	27	269	12	8

This table shows the number of physicians registered in each state by the acceptance of other state licenses or credentials during 1930. Read from left to right, it shows the total number of physicians registered in the state named and the number of candidates coming from each of the states (also U. S. Government services, National Board of Medical Examiners, U. S. Territories and Canada) named at the top of the various columns. Read from above downward, the figures show the number of physicians who left the state named at the top of the column and went to each of the states named at the left in the corresponding lines. At the bottom is given the total number of candidates transferring to other states and also shows where the physicians registered through reciprocity obtained their original licenses or credentials. The number licensed by reciprocity in 1930 was 2,327 as compared with 989 so registered in 1907.

TABLE 3.—*Results for This and Previous Years*

Year	All Candidates Examined: Examined	Passed	Failed	Percentage Failed	Nonescript: Examined	Percentage Failed	Registered Without Written Examination	Total Registered
1904	7,038	5,675	1,363	19.4	515	52.6	999	6,674
1905	7,172	5,682	1,490	20.8	472	61.9	394	6,076
1906	8,035	6,368	1,667	20.7	703	51.3	1,499	7,867
1907	7,273	5,725	1,548	21.3	674	69.6	1,426	7,151
1908	7,770	6,084	1,686	21.5	494	56.8	1,280	7,364
1909	7,289	5,859	1,430	19.6	439	54.1	1,372	7,231
1910	7,004	5,712	1,292	18.4	353	45.6	1,640	7,352
1911	6,962	5,580	1,382	19.8	330	38.5	1,243	6,823
1912	6,880	5,467	1,413	20.5	253	34.8	1,270	6,737
1913	6,445	5,246	1,199	18.6	251	37.8	1,291	6,537
1914	5,672	4,372	1,200	21.5	293	61.4	1,434	5,806
1915	5,315	4,488	827	15.6	65	49.2	1,393	5,881
1916	4,853	4,126	727	15.0	...	....	1,345	5,471
1917	4,738	4,069	669	14.7	...	....	1,359	5,428
1918	3,641	3,158	483	13.3	...	....	1,045	4,203
1919	4,744	4,068	676	14.3	67	47.0	2,536	6,604
1920	4,790	4,056	734	15.3	67	50.8	2,551	6,607
1921	4,812	4,216	596	12.4	91	33.0	2,168	6,384
1922	4,009	3,517	492	12.2	85	49.7	2,045	5,562
1923	4,702	4,002	700	14.8	61	34.5	2,332	6,334
1924	5,367	4,730	637	11.9	35	17.6	1,869	6,599
1925	5,984	5,432	552	9.2	63	53.2	1,890	7,322
1926	5,814	5,347	467	8.0	158	50.5	1,916	7,263
1927	5,364	5,077	387	7.1	184	23.6	2,164	7,241
1928	5,740	5,172	368	6.8	318	31.4	2,220	7,392
1929	5,695	5,329	366	6.4	316	33.8	2,373	7,702
1930	5,307	5,190	317	5.8	187	32.4	2,358	7,548

(CONTINUED FROM PAGE 1391)

constant increase or decrease in the total number of physicians registered from 1904 to 1930. There has been considerable fluctuation in the numbers between these years, but no constant rise or fall. This is illustrated in chart 2. The sharp fall in the number of physicians registered in 1918 was, of course, due to the sudden withdrawal of physicians and recent graduates from civilian life. Again, in 1922 there was a noticeable decline, this figure representing the small class who began the study of medicine in 1918. The curve representing those licensed by examination follows quite closely the total registration curve. The curve representing those licensed by reciprocity shows an irregular but none the less constant increase from 394 in 1905 to 2,358 in 1930.

QUALIFICATIONS OF LICENTIATES

Table 4, giving the qualifications of physicians licensed in 1930, shows that today an overwhelming majority of licentiates are graduates of approved medical schools. There were 6,831 graduates of these schools licensed in 1930, as compared with 156 from

TABLE 4.—*Qualifications of Physicians Licensed in 1930*

	By Examination: Medical Colleges in Class: A	B	Nonescript	Miscellaneous	Totals	By Reciprocity, Endorsement of Credentials or Special Exemption: Medical Colleges in Class: A	B	Nonescript	Miscellaneous	Totals	Totals Registered from Medical Colleges in Class: A	B	Nonescript	Miscellaneous	Grand Totals
Alabama	26	1	0	0	27	31	3	0	3	37	57	4	0	3	64
Arizona	19	0	0	0	19	28	2	0	6	36	47	2	0	6	55
Arkansas	24	0	1	0	25	18	0	0	3	21	42	0	1	3	46
California	259	0	58	9	326	212	8	2	21	243	471	8	60	30	569
Colorado	36	0	15	1	52	32	0	2	6	40	68	0	17	7	92
Connecticut	46	2	1	2	51	35	2	0	2	39	81	4	1	4	90
Delaware	7	0	0	0	7	10	1	0	0	11	17	1	0	0	18
District of Columbia	33	1	0	0	34	17	1	1	5	24	50	2	1	5	58
Florida	61	0	1	9	71	0	0	0	0	0	61	0	1	9	71
Georgia	72	0	0	0	72	9	0	0	3	12	81	0	0	3	84
Idaho	7	0	0	0	7	8	1	0	0	9	15	1	0	0	16
Illinois	349	1	25	13	388	109	2	2	6	119	458	3	27	19	507
Indiana	116	0	0	0	116	29	4	0	4	37	145	4	0	4	153
Iowa	111	0	0	1	112	41	2	0	2	45	152	2	0	3	157
Kansas	74	0	1	0	75	29	4	0	1	34	103	4	1	1	109
Kentucky	70	1	4	0	75	29	3	0	1	33	99	4	4	1	108
Louisiana	97	0	0	2	99	10	0	0	0	10	107	0	0	2	109
Maine	22	0	0	0	22	12	0	1	2	15	34	0	1	2	37
Maryland	119	0	0	1	120	22	2	0	3	27	141	2	0	4	147
Massachusetts	140	5	81	4	230	44	0	0	0	44	184	5	81	4	274
Michigan	294	2	0	6	302	81	8	0	3	92	375	10	0	9	394
Minnesota	172	3	0	0	175	26	0	0	0	26	198	3	0	0	201
Mississippi	30	1	0	0	31	16	1	0	4	21	46	2	0	4	52
Missouri	148	0	0	1	149	64	5	3	0	72	212	5	3	1	221
Montana	12	0	0	1	13	10	2	0	3	15	22	2	0	4	28
Nebraska	65	0	0	0	65	7	0	0	0	7	72	0	0	0	72
Nevada	2	0	0	0	2	12	3	0	0	15	14	3	0	0	17
New Hampshire	1	0	0	0	1	24	0	0	3	27	25	0	0	3	28
New Jersey	79	2	0	1	82	175	4	0	6	185	254	6	0	7	267
New Mexico	0	0	0	0	0	20	7	0	4	31	20	7	0	4	31
New York	767	8	0	32	807	210	8	1	31	250	977	16	1	63	1,057
North Carolina	84	0	1	0	85	26	1	1	1	29	110	1	2	1	114
North Dakota	15	1	0	0	16	5	0	0	1	6	20	1	0	1	22
Ohio	225	1	0	2	228	100	5	2	6	113	325	6	2	8	341
Oklahoma	52	0	0	0	52	42	1	0	2	45	94	1	0	2	97
Oregon	32	0	0	0	32	27	2	1	2	32	59	2	1	2	64
Pennsylvania	410	4	0	7	421	42	0	0	0	42	452	4	0	7	463
Rhode Island	66	1	2	3	72	4	0	0	0	4	70	1	2	3	76
South Carolina	37	0	0	0	37	5	0	0	0	5	42	0	0	0	42
South Dakota	17	0	0	0	17	13	0	0	0	13	30	0	0	0	30
Tennessee	153	2	0	0	155	17	1	0	1	19	170	3	0	1	174
Texas	139	0	0	8	147	133	24	56	33	246	272	24	56	41	393
Utah	10	0	0	0	10	6	0	0	1	7	16	0	0	1	17
Vermont	18	1	0	0	19	6	0	0	2	8	24	1	0	2	27
Virginia	122	0	0	0	122	26	1	0	1	28	148	1	0	1	150
Washington	44	0	0	3	47	44	1	0	0	45	88	1	0	3	92
West Virginia	40	1	0	0	41	25	0	0	1	26	65	1	0	1	67
Wisconsin	96	1	0	1	98	76	4	3	11	94	172	5	3	12	192
Wyoming	2	1	0	1	4	7	1	0	1	9	9	2	0	2	13
U. S. Territories and Possessions	28	1	1	2	32	9	1	0	0	10	37	2	1	2	42
Totals	4,848	41	191	110	5,190	1,983	115	75	185	2,358	6,831	156	266	295	7,548

The following states have separate homeopathic examining boards: Arkansas, Connecticut, Delaware, Louisiana and Maryland. In 1930 Connecticut licensed three candidates by reciprocity, Louisiana licensed two by reciprocity and Maryland licensed two by examination.
The one eclectic board in existence, Arkansas, licensd one candidate by examination.

those schools formerly classified as class B, 266 from "nondescript" schools, and 295 from the "miscellaneous" colleges.

The educational fitness of the persons licensed to practice the healing art in the past fourteen years is

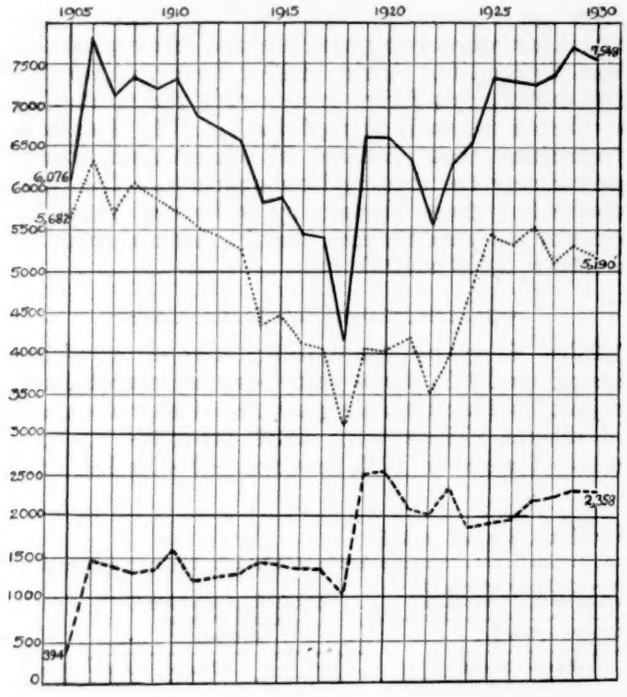

Chart 2.—Registration by examination and reciprocity since 1905: solid line, total registration by years; dotted lne, licensed by examination; broken line, licensed by reciprocity.

shown in table 5. Much encouragement should be derived from this table and from chart 3 by members of licensing boards, medical educators, public health and other officials and all public spirited citizens who believe that those who are to be allowed to treat the sick should first be properly and thoroughly educated. They show that an increasing number of class A [4] graduates are being licensed from year to year while fewer of those from low grade and unacceptable medical colleges are being accepted.

TABLE 5.—*Source of Physicians Licensed in Fourteen Years*

	From Medical Colleges in								
	Class A		Class B		Nondescript and Class C		Miscellaneous and Foreign		
Year	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Total
1917	3,376	62.2	987	18.2	299	5.5	765	14.1	5,427
1918	2,456	58.7	682	16.3	342	8.2	705	16.8	4,185
1919	4,368	66.4	872	13.2	278	4.2	1,066	16.2	6,584
1920	4,597	70.2	631	9.6	275	4.2	1,054	16.0	6,557
1921	4,445	70.0	585	9.2	394	6.2	924	14.6	6,348
1922	3,999	72.8	444	8.1	316	5.7	738	13.4	5,497
1923	4,755	75.2	380	6.0	299	4.8	887	14.1	6,321
1924	5,196	79.3	404	6.2	129	1.9	824	12.6	6,553
1925	5,852	81.3	382	5.3	171	2.4	789	11.0	7,194
1926	6,045	83.7	322	4.4	263	3.6	593	8.2	7,223
1927	6,077	84.3	296	4.1	276	3.8	558	7.7	7,207
1928	6,269	85.0	298	4.0	286	3.9	523	7.1	7,376
1929	6,658	87.2	256	3.4	282	3.6	450	5.8	7,646
1930	6,831	90.5	156	2.1	266	3.5	295	3.9	7,548
Total	70,924	77.4	6,695	7.3	3,876	4.2	10,171	11.1	91,666

4. Since 1928 the Council on Medical Education and Hospitals has dropped the designation class A, B or C, as applied to medical colleges, listing them only as "approved" or "unapproved." However, for practical purposes the approved schools are still referred to as "class A."

The qualifications of physicians licensed in the past six years are analyzed in greater detail in table 6. Here the figures are tabulated according to the individual states. All the states except Massachusetts and Texas show in general a decrease over previous years in the number of "nondescript" [5] candidates licensed. However, California, Colorado and Illinois are three states which are still accepting a considerable number of these poorly qualified candidates.

The methods by which these poorly qualified candidates have been licensed during the past six years are given in table 7. Some interesting developments in the various states may be noted in this table and in chart 4, which accompanies it. The five chief offenders are California, Colorado, Illinois, Massachusetts and Texas. Arkansas is included in the chart by way of comparison to show what improvement has been made in that state. In California the high numbers admitted by examination represent chiefly osteopaths who have been licensed as osteopathic physicians and surgeons by a separate osteopathic board of examiners, which alone determines the fitness of the candidates. It will be noted that fewer poorly qualified candidates are being licensed in that state by reciprocity. In Colorado there has been a general decrease from year to year, until in 1930 when there was an increase of those licensed by examination. In Illinois the trend has also been downward. Massachusetts is accepting increasing numbers of poorly qualified practitioners by examination, although none by reciprocity. In 1930, for the first time, Texas accepted no poorly qualified candidates by examination. This was due to a board ruling of 1925, which required two years of college education of all candidates, thereby affecting the graduates of 1930. This will be referred to later in more detail. On the other hand, there has been an increasing tendency to accept poorly qualified candidates by reciprocity in Texas. Fifty-one of the fifty-six candidates so accepted in 1930 were osteopaths.

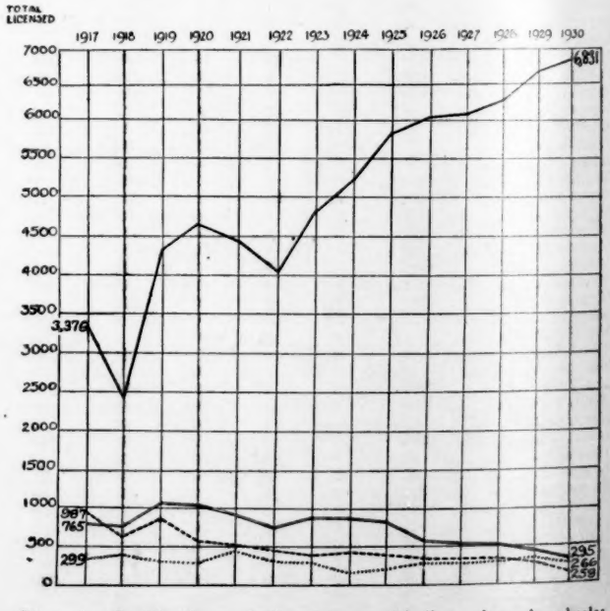

Chart 3.—Qualifications of licentiates: solid line, class A schools; broken line, class B schools; dotted line, class C and nondescript; double line, graduates of American schools prior to 1907, Canadian schools prior to 1910, and foreign graduates.

5. Nondescript colleges in table 5 refer to graduates of institutions rated in class C and unrecognized medical schools, undergraduates and osteopaths.

TABLE 6.—*Qualifications of Physicians Licensed by State Medical Boards in Six Years*

Mar. No.	State	Graduates of Class A Medical Schools							Graduates of Class B Medical Schools							Graduates of Nondescript Schools							Grads. of Misc. Coll. 6 Yrs.	Registrations 6 Yrs.	Mar. No.
		1925	1926	1927	1928	1929	1930	Total	1925	1926	1927	1928	1929	1930	Total	1925	1926	1927	1928	1929	1930	Total			
1	Alabama	43	47	45	62	64	57	318	1	6	1	2	0	4	14	1	0	0	1	0	0	2	6	340	1
2	Arizona	18	23	19	35	43	47	185	2	4	5	4	2	2	19	3	0	2	0	2	0	7	47	258	2
3	Arkansas	42	35	50	47	63	42	279	8	6	2	4	7	0	27	22	8	2	2	1	1	36	33	375	3
4	California	433	392	469	445	506	471	2,716	33	26	19	10	11	8	107	12	49	96	99	98	60	414	351	3,588	4
5	Colorado	63	85	72	69	69	68	426	10	9	3	3	0	0	25	18	44	42	26	11	17	158	72	681	5
6	Connecticut	97	86	83	95	92	81	534	9	4	2	1	3	4	23	1	0	2	1	0	1	5	33	595	6
7	Delaware	8	8	9	19	16	17	77	2	2	0	1	1	1	7	0	0	0	1	0	0	1	4	89	7
8	Dist. Columbia	106	102	109	111	61	50	539	1	3	3	2	0	2	11	3	3	0	4	0	1	11	30	591	8
9	Florida	347	165	73	57	62	61	765	35	6	6	5	0	0	52	2	3	1	1	1	1	9	113	939	9
10	Georgia	96	99	85	104	86	81	551	0	1	2	3	3	0	9	1	1	1	2	0	0	5	11	576	10
11	Idaho	8	21	22	15	19	15	100	2	0	1	1	1	1	6	0	0	1	0	0	0	1	15	122	11
12	Illinois	269	399	419	408	436	458	2,389	32	17	8	3	6	3	69	23	40	40	32	35	27	197	127	2,782	12
13	Indiana	120	118	147	132	145	145	807	7	9	7	7	6	4	40	1	3	0	0	1	0	5	23	875	13
14	Iowa	123	125	117	136	130	152	783	3	6	1	1	2	2	15	3	0	0	0	1	0	4	26	828	14
15	Kansas	81	106	77	69	108	103	544	3	4	1	1	1	4	14	2	0	0	1	0	1	4	30	592	15
16	Kentucky	78	86	94	102	103	99	562	6	13	8	12	8	4	51	2	1	1	2	4	4	14	27	654	16
17	Louisiana	79	85	108	113	101	107	593	1	0	3	3	3	0	10	1	3	0	0	0	0	4	11	618	17
18	Maine	41	41	32	38	35	34	221	3	1	2	3	1	0	10	0	0	0	0	0	1	1	15	247	18
19	Maryland	120	123	118	135	127	141	764	4	4	3	4	0	2	17	2	2	0	2	0	0	6	37	824	19
20	Massachusetts	124	191	179	185	193	184	1,056	3	1	2	5	2	5	18	34	55	39	57	52	81	318	41	1,433	20
21	Michigan	301	282	278	327	337	375	1,900	12	11	10	8	15	10	66	1	3	0	1	3	0	8	84	2,058	21
22	Minnesota	194	207	180	200	188	198	1,167	4	2	1	2	1	3	13	0	0	0	0	0	0	0	20	1,200	22
23	Mississippi	39	33	38	45	45	46	246	6	4	0	3	3	2	18	2	2	1	1	0	0	6	21	291	23
24	Missouri	160	147	155	164	179	212	1,017	2	5	1	3	4	5	20	1	0	2	1	9	3	16	27	1,080	24
25	Montana	19	17	17	24	17	22	116	3	1	1	2	0	2	9	0	0	0	0	0	0	0	11	136	25
26	Nebraska	132	108	100	76	74	72	562	1	0	1	0	0	0	2	0	2	1	0	0	0	3	11	578	26
27	Nevada	8	14	14	9	13	14	72	0	1	2	0	2	3	8	1	1	3	3	2	0	10	14	104	27
28	New Hampshire	19	19	20	16	17	25	116	0	1	4	0	1	0	6	0	0	1	0	0	0	1	12	135	28
29	New Jersey	51	51	195	208	224	254	983	3	3	14	21	13	6	60	0	0	1	1	2	0	4	86	1,133	29
30	New Mexico	11	11	15	11	17	20	85	1	2	2	1	1	7	14	0	1	1	0	0	0	2	34	135	30
31	New York	836	874	902	903	1,003	977	5,495	74	67	55	83	64	16	359	1	0	2	1	4	1	9	596	6,459	31
32	North Carolina	110	120	124	95	133	110	692	3	0	0	2	3	1	9	0	1	0	2	1	2	6	26	733	32
33	North Dakota	28	28	18	23	17	20	134	1	0	1	1	2	1	6	0	0	0	0	0	0	0	3	143	33
34	Ohio	321	347	309	356	346	325	2,004	36	11	29	36	36	6	154	2	0	0	1	1	2	6	76	2,240	34
35	Oklahoma	56	67	98	85	85	94	485	3	4	2	2	4	1	16	1	0	2	1	2	0	6	31	538	35
36	Oregon	77	63	60	59	65	59	383	4	1	2	4	3	2	16	0	1	0	1	1	1	4	23	426	36
37	Pennsylvania	325	352	357	331	419	452	2,236	20	45	61	38	12	4	180	0	4	1	0	1	0	6	122	2,544	37
38	Rhode Island	23	20	27	27	45	70	212	0	0	1	0	1	1	3	0	0	0	0	0	2	2	23	240	38
39	South Carolina	45	42	46	58	37	42	270	3	0	1	0	0	0	4	1	0	1	0	0	0	2	6	282	39
40	South Dakota	20	21	16	22	24	30	133	1	2	0	0	0	0	3	0	2	0	0	0	0	2	10	148	40
41	Tennessee	123	146	147	149	168	170	903	2	2	2	1	3	3	13	2	0	0	1	0	0	3	8	927	41
42	Texas	163	314	200	217	256	272	1,422	16	45	18	6	15	24	124	23	69	25	38	50	56	261	313	2,120	42
43	Utah	23	40	13	14	22	16	128	1	0	0	0	1	0	2	0	0	0	0	0	0	0	10	140	43
44	Vermont	56	40	27	32	34	24	213	0	1	1	0	3	1	6	0	0	0	0	1	0	1	16	236	44
45	Virginia	111	123	127	128	148	148	785	1	2	2	2	3	1	11	2	1	2	0	0	0	5	15	816	45
46	Washington	86	98	63	96	92	88	523	10	5	3	3	0	1	22	3	0	0	0	0	0	3	40	588	46
47	West Virginia	71	75	90	64	70	65	435	3	2	4	0	1	1	11	0	0	4	0	1	0	5	22	473	47
48	Wisconsin	134	115	78	119	127	172	745	9	9	3	2	6	5	34	2	1	1	0	0	3	7	70	856	48
49	Wyoming	11	12	16	7	13	9	68	0	1	1	2	2	2	8	0	0	0	0	0	0	0	9	85	49
50	U. S. Terr. and Possessions	25	28	44	42	27	37	203	1	2	0	2	2	2	9	0	0	3	1	0	1	5	462	679	50
51	Totals	5,874	6,151	6,101	6,284	6,701	6,831	37,942	385	351	301	299	258	156	1,750	173	300	278	284	284	266	1,585	3,253	44,530	51

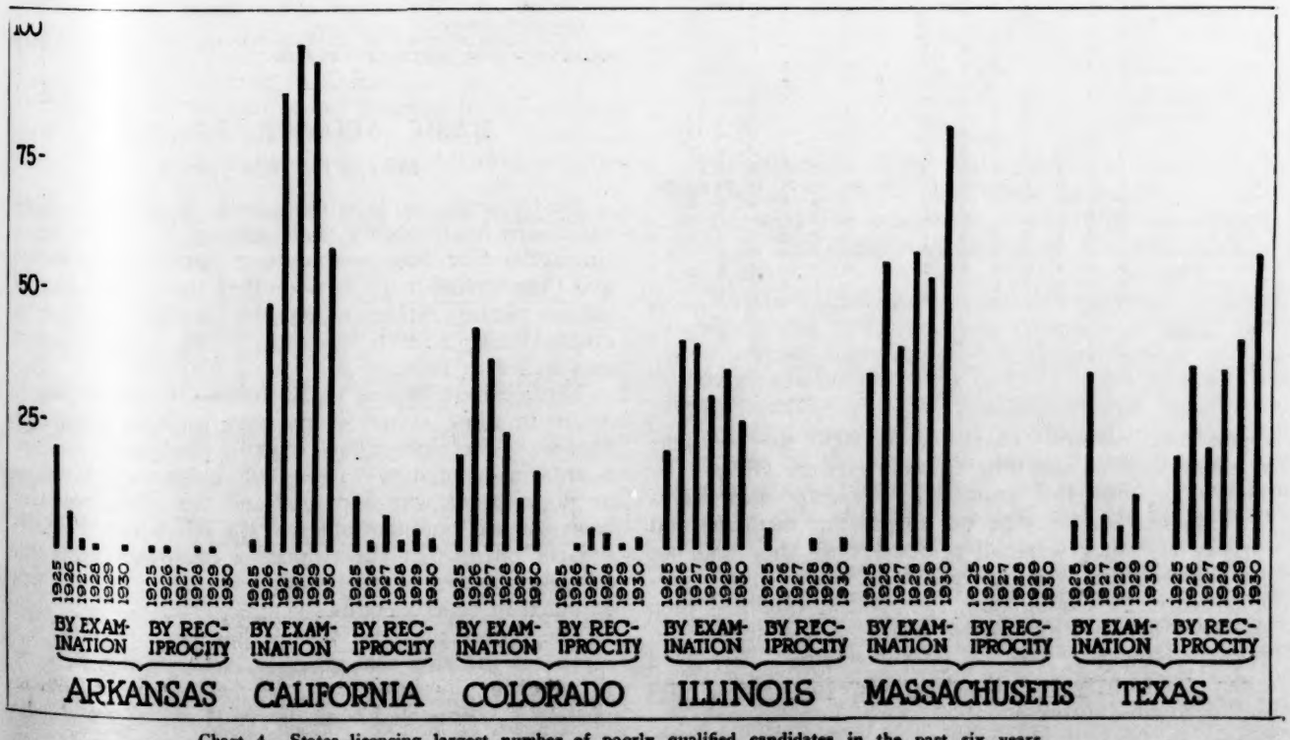

Chart 4.—States licensing largest number of poorly qualified candidates in the past six years.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION

There are now forty-three states (counting Alaska Territory and the District of Columbia) which, either by law, board ruling, or both, have adopted requirements of preliminary education in addition to a standard four-year high school education. Of these, thirty-nine require the two-year standard. Before 1908 not one state had any such requirement. Only one state has no definite requirement of preliminary education, while six states still require only a high school education. The effectiveness of the requirement of two years of preliminary education of all practitioners has recently been beautifully demonstrated in Texas, where in 1925 the board ruled that matriculants of 1926 would be required to show two years of premedical work when they applied for licensure (chart 4). In 1930, the first year in which medical and other graduates were affected by this ruling, only four osteopaths presented themselves for examination for a license to practice medicine and surgery and they were all rejected since they had not had the requisite preparatory college work. In the previous year, by examination, ten poorly qualified men had been licensed to practice medicine and surgery in Texas. However, fifty-six poorly qualified men from other states, fifty-one of whom were osteopaths who had graduated prior to 1930, were licensed by reciprocity in Texas in that year.

TABLE 7.—*Poorly Qualified Candidates Licensed from 1925-1930*

State	By Examination							By Reciprocity							
	1925	1926	1927	1928	1929	1930	Total	1925	1926	1927	1928	1929	1930	Total	Grand Total
Alabama	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2
Arizona	2	0	1	0	1	0	4	1	0	1	0	1	0	3	7
Arkansas	21	7	2	1	0	1	32	1	1	0	1	1	0	4	36
California	2	47	88	97	94	58	386	10	2	8	2	4	2	28	414
Colorado	18	43	38	23	10	15	147	0	1	4	3	1	2	11	158
Connecticut	0	0	2	0	0	1	3	1	0	0	1	0	0	2	5
Delaware	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Dist. Columbia	1	1	0	1	0	0	3	2	2	0	3	0	1	8	11
Florida	2	3	1	1	1	1	9	0	0	0	0	0	0	0	9
Georgia	0	0	1	0	0	0	1	1	1	0	2	0	0	4	5
Idaho	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Illinois	19	40	40	30	35	25	189	4	0	0	2	0	2	8	197
Indiana	0	0	0	0	0	0	0	1	3	0	0	1	0	5	5
Iowa	0	0	0	0	0	0	0	3	0	0	0	1	0	4	4
Kansas	0	0	0	1	0	1	2	2	0	0	0	0	0	2	4
Kentucky	2	1	0	2	2	4	11	0	0	1	0	2	0	3	14
Louisiana	1	3	0	0	0	0	4	0	0	0	0	0	0	0	4
Maine	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Maryland	1	0	0	0	0	0	1	1	2	0	2	0	0	5	6
Massachusetts	34	55	39	57	52	81	318	0	0	0	0	0	0	0	318
Michigan	0	1	0	1	3	0	5	1	2	0	0	0	0	3	8
Minnesota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mississippi	2	2	1	1	0	0	6	0	0	0	0	0	0	0	6
Missouri	1	0	1	0	0	0	2	0	0	1	1	9	3	14	16
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebraska	0	1	0	0	0	0	1	0	1	1	0	0	0	2	3
Nevada	0	0	1	1	0	0	2	1	1	2	2	2	0	8	10
N. Hampshire	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
New Jersey	0	0	0	0	0	0	0	0	0	1	1	2	0	4	4
New Mexico	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2
New York	1	0	1	1	2	0	5	0	0	1	0	2	1	4	9
No. Carolina	0	0	0	0	1	1	2	0	1	0	2	0	1	4	6
No. Dakota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio	1	0	0	1	1	0	3	1	0	0	0	0	2	3	6
Oklahoma	0	0	0	0	0	0	0	1	0	2	1	2	0	6	6
Oregon	0	1	0	1	0	0	2	0	0	0	0	1	1	2	4
Pennsylvania	0	3	1	0	1	0	5	0	1	0	0	0	0	1	6
Rhode Island	0	0	0	0	0	2	2	0	0	0	0	0	0	0	2
So. Carolina	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2
So. Dakota	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
Tennessee	2	0	0	1	0	0	3	0	0	0	0	0	0	0	3
Texas	5	34	6	4	10	0	59	18	35	19	34	40	56	202	261
Utah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vermont	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Virginia	1	0	0	0	0	0	1	1	1	2	0	0	0	4	5
Washington	0	0	0	0	0	0	0	3	0	0	0	0	0	3	3
West Virginia	0	0	4	0	0	0	4	0	0	0	0	1	0	1	5
Wisconsin	2	0	0	0	0	0	2	0	1	1	0	0	3	5	7
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U. S. Terr. and Possessions	0	0	3	1	0	1	5	0	0	0	0	0	0	0	5
Total	118	242	231	225	214	191	1,221	55	58	47	59	70	75	364	1,585

The states, the number of college years required and the time the higher requirements became or become effective are as follows:

State Examining Board of	One Year of College Work		Two Years of College Work		A Hospital Internship	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Applicants
Alabama	.....	....	1915-16	1919	.....	....
Alaska	1914-15	1918	1918-19	1922	1912-13	1917
Arizona	1914-15	1918	1918-19	1922	.....	....
Arkansas [1]	1915-16	1919	1918-19	1922	.....	....
California	1915-16	1919	.....	....	.....	....
Colorado	1908-09	1912	1910-11	1914	.....	....
Connecticut	1915-16	1919	.....	....	.....	....
Delaware *	.....	....	.....	....	1919-20	1924
Dist. of Columbia	.....	....	1925-26	1929	1924-25	1929
Florida	1914-15	1918	1918-19	1922	.....	....
Georgia	.....	....	1918-19	1922	.....	....
Idaho	.....	....	1915-16	1919	.....	....
Illinois	1915-16	1919	1919-20	1923	1918-19	1923
Indiana	1910-11	1914	1911-12	1915	.....	....
Iowa	.....	....	1911-12	1915	1919-20	1924
Kansas	1910-11	1914	1918-19	1922	.....	....
Kentucky	1914-15	1918	1918-19	1922	.....	....
Louisiana	1915-16	1919	1918-19	1922	.....	....
Maine	1915-16	1919	1916-17	1920	.....	....
Maryland	1914-15	1918	1918-19	1922	.....	....
Massachusetts *	.....	....	.....	....	.....	....
Michigan	1914-15	1918	1918-19	1922	1917-18	1922
Minnesota	.....	....	1908-09	1912	.....	....
Mississippi	1915 16	1919	.....	....	.....	....
Missouri *	.....	....	.....	....	.....	....
Montana	1914-15	1918	1918-19	1922	.....	....
Nebraska *	.....	....	.....	....	.....	....
Nevada *	.....	....	.....	....	.....	....
New Hampshire	1914-15	1918	1915-16	1919	.....	....
New Jersey	1915-16	1919	1917-18	1921	1911-12	1916
New Mexico	1914-15	1918	1918-19	1922	.....	....
New York	1917-18	1921	1918-19	1922	.....	....
North Carolina	1914-15	1918	1918-19	1922	.....	....
North Dakota	.....	....	1908-09	1912	1913-14	1918
Ohio *	.....	....	.....	....	.....	....
Oklahoma	1914-15	1918	1917-18	1921	.....	....
Oregon	.....	....	1920-21	1924	.....	....
Pennsylvania	1914-15	1918	.....	....	1909-10	1914
Rhode Island	1914-15	1918	1918-19	1922	1912-13	1917
South Carolina	.....	....	1918-19	1922	.....	....
South Dakota	1908-09	1912	1911-12	1915	1920-21	1925
Tennessee	1916-17	1920	1918-19	1922	.....	....
Texas	1914-15	1918	1926-27	1930	.....	....
Utah	1913-14	1917	1922-23	1926	1921-22	1926
Vermont	1913-14	1917	1918-19	1922	.....	....
Virginia	1914-15	1918	1917-18	1921	.....	....
Washington	1914-15	1918	1918-19	1922	1914-15	1919
West Virginia	1917-18	1921	1921-22	1925	1927-28	1932
Wisconsin	.....	....	1915-16	1919	1922-23	1927
Wyoming †	.....	....	.....	....	1926-27	1931

* Require a four-year high school education or its equivalent.
† No fixed standard.
1. The higher standard in Arkansas evidently is not enforced by the sectarian licensing boards of that state.

BASIC SCIENCE BOARDS

STATISTICS FOR 1930

Nearly every one is familiar with the existence of the examining boards in the basic sciences in various states. Since the first boards were established in Wisconsin and Connecticut in 1925, five other states have adopted similar plans. Arkansas and the District of Columbia created basic science boards in 1929, but none were established in 1930.

The greatest degree of usefulness for these boards exists in those states which have multiple examining boards. The inequality existing between different boards in demanding varying educational qualifications or none at all was apparent and the introduction of basic science examinations had the advantage of assuring the citizens of the respective commonwealths that all practitioners of the healing art were equally well founded in fundamentals.

The object of these boards has been to provide a means of insuring that all candidates seeking authority to practice any branch of the healing art shall first possess a reasonable knowledge of those sciences fundamental to it as demonstrated by an examination in those

subjects before they present themselves to their respective professional boards for examination. The subjects in which examinations are conducted are listed in table 1. They include anatomy, physiology and pathology by all boards; bacteriology, chemistry and hygiene by four boards and diagnosis by two.

TABLE 1.—*Subjects of Examinations by Basic Science Boards*

State	Examinations Required in: Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology
Arkansas	+	+	+	..	..	+	+
Connecticut	+	..	..	+	+	+	+
District of Columbia	+	+	+	..	..	+	+
Minnesota	+	+	..	..	+	+	+
Nebraska	+	+	+	..	+	+	+
Washington	+	..	+	..	+	+	+
Wisconsin	+	..	..	+	..	+	+

In table 2 the results of examinations in 1930 appear. Of 752 candidates of all descriptions who presented themselves, 127 failed (16.9 per cent). Of the 674 physicians examined, 79 failed (11.7 per cent); of the 33 osteopaths examined, 15 failed (45.5 per cent); of the chiropractors, 78.1 per cent failed. Of the entire nonmedical group, 61.5 per cent failed. The greatest

TABLE 2.—*Applicants Examined by Basic Science Boards During 1930*

Name of Board	Year Enacted	Regular Physicians or Medical Students P	Regular Physicians or Medical Students F	Osteopaths P	Osteopaths F	Chiropractors P	Chiropractors F	Other Non-Medical Practitioners P	Other Non-Medical Practitioners F	Total Examined	Passed	Failed	Percentage of Failures
Arkansas	1929	27	0	1	0	0	0	0	2	30	28	2	6.7
Connecticut	1925	70	5	6	1	0	0	0	1	83	76	7	8.4
District of Columbia	1929	38	17	0	1	0	1	0	0	57	38	19	33.3
Minnesota	1927	187	29	7	7	0	4	0	2	236	194	42	17.8
Nebraska	1927	32	5	0	2	0	0	2	0	41	34	7	17.1
Washington	1927	91	8	2	3	6	12	2	2	126	101	25	19.8
Wisconsin	1925	150	15	2	1	1	8	1	1	179	154	25	14.0
Totals—Examined		674		33		32		13		752	...	..	....
Totals—Passed		595		18		7		5		...	625	..	....
Totals—Failed		79		15		25		8		...	...	127	....
Percentage of failures		11.7		45.5		78.1		61.5		...	...	..	16.9

number of candidates were examined in Minnesota, 236, of whom 216 were physicians or medical students. The highest proportion of failures (33.3 per cent) occurred in the District of Columbia.

The number of certificates granted by examination and by reciprocity are listed in table 3. Wisconsin accepted the greatest number of candidates from other

TABLE 3.—*Certificates Issued by Basic Science Boards in 1930 by Examination and Reciprocity*

Name of Board	By Examination: Physicians or Medical Students	Osteopaths	Chiropractors	Other Non-Med. Practitioners	Totals	By Reciprocity: Physicians	Osteopaths	Chiropractors	Other Non-Med. Practitioners	Totals	Registered
Arkansas	27	1	..	..	28	..	..	..	..	..	28
Connecticut	70	6	..	..	76	..	..	..	..	..	76
Dist. of Columbia	38	..	..	..	38	..	..	..	..	..	38
Minnesota	187	7	..	..	194	12	..	..	..	12	206
Nebraska	32	..	..	2	34	..	..	..	1	1	35
Washington	91	2	6	2	101	..	..	..	..	..	101
Wisconsin	150	2	1	1	154	86	3	..	..	89	243
Totals	595	18	7	5	625	98	3	..	1	102	727

states, 89, all but 3 of whom were physicians. All basic science boards, except that of Washington, have established reciprocal agreements.

Table 4 shows the number of candidates examined and certified by basic science boards during the last four years. In 1930, 11.7 per cent of the physicians examined failed, an increase of 3 per cent over the previous year; but 61.5 per cent of the nonmedical practitioners failed, an increase of 8.5 per cent. This would indicate greater stringency on the part of basic science boards, affecting most seriously the nonmedical candidates.

TABLE 4.—*Total Candidates in Four Years*

Years	Number of Boards	Physicians: By Examination: Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified	Other Practitioners: By Examination: Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified
1927	5	305	279	26	8.5	26	305	22	15	7	31.8	1	16
1928	5	646	586	60	9.3	19	605	59	31	28	47.5	..	31
1929	7	668	610	58	8.7	75	685	66	31	35	53.0	..	31
1930	7	674	595	79	11.7	98	693	78	30	48	61.5	4	34
Totals		2,293	2,070	223	9.1	218	2,288	225	107	118	52.4	5	112

NATIONAL BOARD OF MEDICAL EXAMINERS

STATISTICS FOR 1930

The National Board of Medical Examiners was organized in 1915. Its purpose is to establish in this country a standard qualifying examination of such a character that the certificate awarded successful candidates can be safely accepted by all the state boards of medical licensure as an adequate qualification for the practice of medicine. The value of its certificates, aside from a qualification of merit, depends on the recognition given to it by state medical licensing boards. Holders of certificates from the National Board of Medical Examiners are registered without further examination in the following forty-one states and three territories:

Alabama
Arizona
California
Canal Zone
Colorado
Connecticut
Delaware
Georgia
Hawaii
Idaho
Illinois
Iowa
Kansas
Kentucky
Maine
Maryland
Massachusetts
Minnesota
Mississippi
Missouri
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Porto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming

The certificate of the National Board is accepted by the United States Army, United States Public Health Service and for admission to the final examinations given by the examining boards of England, Scotland and Ireland.

The board consists at present of twenty-six members, including the three Surgeon Generals of the United States Army, Navy and Public Health Service and one other representative from each of those services, five representatives of state licensing boards, two representatives from the Council on Medical Education and Hospitals of the American Medical Association (one now being a former member), two from the Association of American Medical Colleges, and eleven members appointed at large.

The educational requirements of applicants are (*a*) a four-year high school course; (*b*) two years of acceptable college work, including courses in physics, chemistry, biology and a foreign language; (*c*) graduation from a medical school rated as approved, or class A, by the American Medical Association, and (*d*) completion of a contract of at least one year in an acceptable hos-

pital as an intern or a year in an acceptable laboratory. These requirements apply to graduates of medical schools in 1912 and thereafter. The board may accept equivalent credentials of applicants who graduated prior to 1912.

Since 1922 the examinations have been divided into three parts, as follows: Part I, a written examination in the six fundamental medical sciences; anatomy, including histology and embryology; physiology, physiologic chemistry; general pathology; bacteriology, including immunology; materia medica and pharmacology. Part II, a written examination in medicine, including pediatrics, neuropsychiatry and therapeutics; surgery, including applied anatomy, surgical pathology and surgical specialties; obstetrics and gynecology; public health, including hygiene and medical jurisprudence. Part III, a clinical and practical examination in clinical medicine, including medical pathology, medical anatomy, applied physiology, applied pharmacology, clinical chemistry, clinical microscopy and dermatology; clinical surgery, including applied anatomy, surgical pathology, operative surgery and the surgical specialties of the diseases of the eye, ear, nose and throat; obstetrics and gynecology; public health, including sanitary bacteriology and the communicable diseases.

Parts I and II are written examinations held in the class A medical schools, and part III is a practical and clinical examination given by subsidiary boards in the following nineteen cities:

Baltimore	Los Angeles	Philadelphia
Boston	Minneapolis	Portland, Ore.
Chicago	Nashville	Rochester, N. Y.
Cleveland	New Haven	San Francisco
Denver	New Orleans	St. Louis
Galveston	New York	Washington, D. C.
Iowa City		

The schedule of fees of the National Board of Medical Examiners was changed, effective April 1, 1931, although the total remains the same. The fees charged to candidates who apply for registration after that date are as follows:

Registration		$ 5.00
Part I		20.00
Part II		20.00
Part III		
Admission	$10.00	
Final Payment	30.00	
		$40.00
Total		$85.00

EXAMINATIONS IN PART I

Three examinations in part I were held in 1930, as follows:

Date of Examination	Total Examined	Passed	Incomplete	Failed	Percentage Failed
February	270	201	42	27	10.0
June	685	454	173	58	8.4
September	303	145	130	28	9.2
Totals, 1930	1,258	800	345	113	9.1
1929	1,096	675	331	90	8.3
1928	842	532	231	79	9.4
1927	702	452	159	91	13.0
1926	625	436	104	85	13.6
1925	608	400	50	158	26.0
1924	591	415	69	107	18.1
1923	507	349	77	81	16.2
1922	388	263	58	67	17.3
Totals	6,617	4,322	1,424	871	13.2

A definite increase over 1929 in the number of candidates examined is evident; 1,258 were examined in 1930, as compared with 1,096 in 1929. In 1930, 9.1 per cent of those examined failed, while in 1929 the percentage of failures was 8.3. Of all those examined in part I during the past nine years, 871, or 13.2 per cent, failed.

EXAMINATIONS IN PART II

Three examinations in part II were held in 1930, as follows:

Date of Examination	Total Examined	Passed	Incomplete	Failed	Percentage Failed
February	157	141	..	16	10.2
June	333	285	7	41	12.3
September	130	117	..	13	10.0
Totals, 1930	620	543	7	70	11.3
1929	465	399	19	47	10.1
1928	410	371	1	38	9.3
1927	361	314	1	46	12.1
1926	381	334	1	46	9.5
1925	342	309	..	33	9.6
1924	267	227	..	40	14.9
1923	192	170	2	20	10.4
1922	109	90	..	19	17.4
Totals	3,147	2,757	31	359	11.4

During 1930, 620 candidates were examined in part II as compared with 465 in 1929. Of those examined in 1930, 11.3 per cent failed, while in 1929, 10.1 per cent failed. Altogether, 3,147 candidates were examined during the past nine years, of whom 359, or 11.4 per cent, failed.

EXAMINATIONS IN PART III

Examinations in part III in 1930 were held in several of the nineteen subsidiary centers in various sections of the United States. The results were as follows:

Examinations of	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	28	28	..	..	0.0
1923	76	75	..	1	1.3
1924	120	114	..	6	5.0
1925	217	206	..	11	4.1
1926	255	243	..	12	4.7
1927	294	272	..	22	7.5
1928	322	306	..	16	5.0
1929	352	336	1	15	4.3
1930	419	399	..	20	4.8
Totals	2,083	1,979	1	103	4.9

In 1930, 419 candidates were examined in part III, as compared with 352 in 1929. Of those examined in 1930, 4.8 per cent failed, while in 1929, 4.3 per cent failed. During the past nine years, 2,083 candidates were examined, of whom 103, or 4.9 per cent, failed.

INDIVIDUALS EXAMINED DURING NINE YEARS

The classification of a student as passed, incomplete or failed, in cases in which more than one examination had been taken, was based on the result of the last examination taken during the year in question. For example, if in 1929 a student passed part I but failed part II, he is classed as having failed in 1929. Omitting duplicates, there were 2,042 individuals who took the National Board examinations during 1930, as compared with 1,723 in 1929. Only 525 were examined in 1922. The percentage of failures in 1930 was 8.6.

	Parts I, II and III, Excluding Duplications				
Year	Examined	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	16.4
1923	775	594	79	102	13.4
1924	978	756	69	153	15.6
1925	1,167	915	50	202	17.3
1926	1,161	930	105	126	10.9
1927	1,248	947	142	159	12.7
1928	1,430	1,101	211	118	8.3
*1929	1,723	1,280	319	124	7.2
1930	2,042	1,545	322	175	8.6

* Corrected figures for 1929.

Diplomates licensed without further examination in the United States increased in eleven years from two in 1917 to 269 in 1930, 1,196 having been so licensed since the National Board was created.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 25, 1931

STATISTICS OF STATE BOARD EXAMINATIONS

This week, for the twenty-eighth consecutive year, statistics are presented by the Council on Medical Education and Hospitals regarding medical licensure during the previous calendar year. The completeness of these figures is due to the cordial cooperation received from the secretaries of the licensing boards, which is sincerely appreciated.

ACCURACY OF DATA

Reports of all examinations are carefully compared with lists of graduates furnished by medical school officials, so that errors in regard to the names of applicants, the medical schools or the years of graduation are promptly corrected. In the occasional instance in which the applicant has not graduated or there is a record of irregularity, the state board is promptly notified. Credentials of physicians coming from abroad are verified by direct correspondence with the foreign medical schools. Thus the statements regarding the medical education and the licensure of all physicians are known to be accurate.

TRENDS IN MEDICAL LICENSURE

Collected figures for the past few years show a proportional increase in the number of licentiates who are graduates of approved medical colleges. While there has been no slackening in the severity of the examinations, it is evident that many state boards consider the examination itself as of less importance than the credentials presented by the candidate. Thus, more and more, candidates from low grade or unrecognized medical schools are being refused examination by these boards. This is reflected in the percentage of failures, which for the whole country has shown a steady decrease from year to year although in individual states there may have been sporadic increases. The medical schools and the organized medical profession supported by enlightened public opinion have brought about this desirable result. There were fewer physicians licensed by reciprocity during 1930 than in the preceding year, but in the last five-year period a general increase in the number of physicians licensed by reciprocity.

Legislation looking toward the certification of specialists as required in Norway, Sweden and the province of Alberta is being seriously considered in several states. These laws are being proposed with the view of providing the public with a safe guide in the selection of specialists.

Annual registration of physicians is now required in twenty states.

LEGISLATION DURING 1930

The only actual legislation directly pertaining to medical licensure enacted in 1930 was in the state of New York, where the law was amended to read that each applicant must have completed four courses of at least eight months each in a medical school, the law formerly stating that the course should be taken in four separate calendar years. Evidently this amendment was in recognition of the fact that it is possible now in several medical schools for students to graduate in less than four calendar years. Two additional states, Wyoming and West Virginia, have also reported board rulings to the effect that an internship is now required before a license can be granted. Five state boards have enacted rulings that citizenship will hereafter be required of all foreign applicants.

HANDICAPS TO PROGRESS

In the light of the developments that have taken place in medical education, it seems strange that a few states still cling to outdated systems of medical practice and maintain separate boards to license such practitioners. Five states still maintain separate homeopathic boards, but they licensed only seven candidates during 1930. The one eclectic board still in existence licensed one candidate, and he was a graduate of a low grade medical school.

The comparative statistics published in this issue show that certain states under their existing medical practice acts have greater difficulties than others in barring the poorly qualified candidate. California is handicapped by having a separate osteopathic board of examiners which has the power to confer licenses to practice medicine and surgery with a single reservation in regard to the prescribing of drugs. Massachusetts requires only a preliminary high school education of those who would prepare themselves for the practice of the healing art and accepts graduates of two distinctly low grade medical schools within its own borders. Illinois still accepts the graduates of one of its own unrecognized medical schools. In Texas it may be expected that fewer poorly qualified practitioners will be licensed in the future, owing to the recent requirement of two years of preparatory college work, as this ruling affects the graduates of 1930 and thereafter. The salutary effect of Colorado's medical practice act passed in 1927 is evident in the reports from that state.

GOVERNMENT REPORTS ON MEDICAL EDUCATION

Since 1912 the United States Bureau of Education has published regular reports on medical education. The first of these was prepared in 1912 by Dr. George E. MacLean, president of the State University of Iowa, in his report on higher education.[1] From 1913 to 1928 inclusive, the reports on medical education were prepared by Dr. N. P. Colwell, secretary of the Council on Medical Education of the American Medical Association. From 1913 to 1918 inclusive the chapters were published annually; since 1918 they have been issued biennially. The most recent report, 1928-1930, is by Dr. Willard C. Rappleye, dean of Columbia University College of Physicians and Surgeons.

In 1904 the United States had more medical schools than all the rest of the world. The 162 medical schools in that year enrolled 28,142 medical students and turned out 5,747 graduates. The chief need at that time was for fewer but better medical schools. During 1929-1930, in spite of the smaller number of medical schools, there were 5,000 more applicants than in 1926-1927, and a largely increased number applied for admission to foreign medical colleges, including 800 American students who applied for admission to one foreign medical school, that of the University of Edinburgh.

The sixty-six acceptable American medical schools offering the complete course had only 4,500 graduates in 1929. Of this number more than half were from 24 to 27 years old, 9 were 21 years of age and 89 were 35 years old or more. In an effort to establish and maintain higher medical standards, thirteen schools now require one year's internship in an approved hospital or in other acceptable clinical work before a medical degree is granted. The state boards of Pennsylvania, New Jersey, Alaska, Rhode Island, North Dakota, Washington, Michigan, Illinois, Delaware, Iowa, South Dakota, Utah, Wisconsin and the District of Columbia encourage higher qualifications by now requiring this one year's supplementary training as an essential qualification for licensure.

Of the seventy-eight approved medical schools under the United States flag, the University of St. Thomas College of Medicine and Surgery at Manila, P. I., has the largest enrolment, with 896 students in attendance. Enrolments of more than 500 were also reported last year by the University of Michigan Medical School, Jefferson Medical College of Philadelphia, Georgetown University School of Medicine, Northwestern University Medical School, University of Illinois College of Medicine, Harvard University Medical School, University of Minnesota Medical School and St. Louis University School of Medicine.

The status of women in medicine is little changed. Since 1925 the average number graduated annually has been 205, although there has been a decline since 1926. Only 204 women were graduated in 1930. The Woman's Medical College of Philadelphia ranks first in number of women, with 116 enrolled and 14 graduated.

In spite of the higher medical college requirements for admission and graduation, and the increased qualifications required by state boards for licensure, the United States has more physicians in proportion to population than any other country; namely, 1 physician to every 800 persons. In other countries the number of people to one physician is: Switzerland, 1,250; Denmark, 1,430; England and Wales, 1,490; Germany, 1,560; France, 1,690; the Netherlands, 1,820, and Sweden, 2,860.

The United States is making great progress in medical education. This progress is the result of voluntary measures on the part of the medical profession. Through the continuation of such measures the United States will have eventually the best qualified physicians as well as the largest proportional number.

1. MacLean, G. E.: Bulletin on Higher Education, Government printing Office, Washington, D. C., 1912.

FOOD VERSUS SUNLIGHT IN BLOOD REGENERATION

The interest in the long assumed subtle health-giving virtues of sunshine has been given a remarkable impetus by the convincing discovery that sunlight has demonstrable curative powers as well as prophylactic potencies in relation to rickets. It is not always possible, however, to rely for protection on sunshine or on that diffuse sunlight known as skyshine. When heliotherapy has become impossible or inadvisable, resort is now successfully made to artificial ultraviolet radiations, with noteworthy success. In fact, Hess[1] has asserted that ultraviolet irradiation is a far more potent and reliable specific than cod liver oil in rickets. Treatment with ultraviolet rays has come to include the use of irradiated foods and irradiated ergosterol (viosterol). Without minimizing these demonstrations, however, it must be emphatically stated that radiant energy will not accomplish the desired physiologic effect regardless of the diet.

Perhaps the most general statement of the potency of irradiation is that it is effective only by virtue of the fact that "it enables or permits the organism to utilize more economically materials present but not available." It is desirable to bear such limitations in mind in view of the enormous current enthusiasm for sunlight and its substitutes. The ultraviolet lamp is looked on by many physicians as well as untutored persons as a cure-all device. Obviously, all the sunlight in the world will not suffice to construct a calcareous bone in the absence of the elements that constitute its inorganic ingredients. Similar limitations are being discovered in other fields of therapy where irradiation has been

1. Hess, A. F.: Rickets, Osteomalacia and Tetany, Philadelphia, Lea and Febiger, 1929.

expected to promote well being. This is notably true in relation to blood regeneration. Studies by Laurens [2] and his collaborators have indicated a stimulation of the hematopoietic system in normal dogs by carbon arc radiation. Repeated massive exposures increased the red cell number from 10 to 19 per cent, the increases being maintained for from three to six weeks after the last irradiation. This outcome is presumably not a peculiarity due to use of the carbon arc lamp. The latter vies with the more familiar mercury vapor lamp for therapeutic use. The technic of using the carbon arc lamp is similar to that of the mercury vapor lamp except for variations in dosage according to the device employed.[3] Laurens' observations led to the suggestion that the action of radiation as a hematopoietic stimulus to the normal, relatively stable organism lent plausibility to the expectation of efficiency in effecting regeneration in anemic conditions.

Recent experiments in the School of Medicine at Tulane University in New Orleans by Laurens and Mayerson[3] have indeed demonstrated that, in animals rendered anemic by measured hemorrhages, irradiation with either carbon or mercury arcs results in persistent increases in the number of erythrocytes and reticulocytes, the responses being greater with massive exposures than with smaller doses repeated more often. More significant, however, is the observation that, contrary to expectation, irradiation did not exert any great influence on hemoglobin regeneration in severe secondary anemia produced by continued bleeding. Potent foods always evoked a hematopoietic response, including an augmentation of hemoglobin. Perhaps this means that irradiation acts on the mechanism for the production of stroma rather than on that by which hemoglobin is made available. In any event, in this investigation appropriate food played a far more decisive part than irradiation in completing the manifold processes that result in the production of an adequate number of normal red blood cells. Even sunlight and its substitutes cannot replace food in such a fundamental process.

2. Laurens, H.: The Physiological Effects of Irradiation, Physiol. Rev. 8:1 (Jan.) 1928.
3. Laurens, H., and Mayerson, H. S.: The Effects of Radiant Energy on Hemorrhagic Anemia, J. Nutrition 3:465 (March) 1931.

NEW STUDIES IN BIRTH CONTROL

THE JOURNAL has commented previously on the attempt to immunize the female against conception by injection into her body of the sperm of the male either live or treated in various ways. The technic has been varied by investigators in different countries. The difficulty with present methods of birth control is their failure to meet psychologic, esthetic and economic considerations. Individual initiative is lacking and carelessness is a prominent trait in exactly that portion of society for which birth control is most generally advised. One cannot expect of the ignorant, the mentally defective or the destitute the type of foresight and intelligence required for the application of such chemical or mechanical methods of contraception as are now available. These considerations have led to the type of experimentation that is here concerned; namely, a method of biologic control that would be independent of the person treated and would be efficient for at least reasonable periods of time.

In 1926, Oslund[1] reviewed the subject so far as experiments on rats, rabbits and guinea-pigs are concerned and concluded that any delay in conception that occurred in these experiments was the result of a general disturbance of the body by the injection of the substance rather than any specific effect of the injected compound on the male and female elements concerned in conception. The government of Soviet Russia has recognized economic distress as an indication for the prevention of conception and is sponsoring research leading to the devising of a biologic method applicable to women. Kastromium and Kartashev of the Perm Institute of Bacteriology in East Soviet Russia have done extensive experimentation on rabbits and guinea-pigs and have reported definite results in preventing conception in the injected animals following the injection of sperm cells. Jarcho,[2] who has cited their experiments, repeated the work on rabbits in this country and found that, whereas many of the controls became pregnant, none of those that were injected conceived, even over a period of six months. Much more experimentation is needed, however, before anything definite can be said as to the actual merit of this technic even in animals. Other Russian investigators have experimented on human beings. A summary of their results is given by Babadagly[3] of Odessa, whose paper is available through translation into Spanish. Babadagly cites experiments with this method on human beings by Schorokova, Kolpikof and Lalin. Apparently more than a hundred women have submitted themselves to such experimentation. Of seventy injected by Lalin, five became pregnant during the next five months. In the injections made by Kolpikof, sterility lasted from eight to ten months. Apparently the injections are harmless, but the work done is certainly not sufficient to define either the limitations or the possibilities.

In addition to such investigations as have been mentioned, attempts toward the production of sterility have been made by Haberlandt,[4] who first transplanted into the female the ovaries of pregnant animals and who more recently has used ovarian extracts given by mouth. Haberlandt is convinced that preparations can be developed which will have the power of preventing conception even when taken by mouth. Indeed, German writers are already discussing the legal limitations that

1. Oslund, R. M.: Physiologic Effects of Spermatoxin in Rats, Rabbits and Guinea-Pigs, J. A. M. A. 86: 1755 (June 5) 1926.
2. Jarcho, J.: Artificial Production of Sterility, with Special Reference to Experimental Temporary Sterility Biologically Induced in the Female, Am. J. Obst. & Gynec. 16: 813 (Dec.) 1929.
3. Babadagly: Espermoinmunidad como método anticoncepcional, Siglo med. 82: 211 (Sept. 1) 1928; 82: 456 (Nov. 10) 1928.
4. Haberlandt, L.: Die hormonale Sterilisierung des weiblichen Organismus, Monatschr. f. Geburtsh. u. Gynäk. 87: 320 (Feb.) 1931.

should be placed on the sale and distribution of such preparations. Other experimenters are looking into the possibility of producing artificial sterility through the limitation of vitamin E in the diet. The work cited is an indication of the extensive interest in this subject throughout the world and would seem to suggest the likelihood of a successful result some time in the future.

Current Comment

THE OMNISCIENT ARTHUR BRISBANE

For the first time the omniscient [1] Brisbane breaks over from the Tonics and Sedatives department of THE JOURNAL into the editorial sections. The omniscient columnist never hesitates to comment on any medical subject, and almost invariably he is wrong. An engineer might admit that the omniscient one is right about everything except engineering, or a chemist might grant the authoritative character of the omniscient Brisbane's remarks so far as they concern everything but chemistry. Apparently, omniscient as he is, the great Brisbane overlooked the Wiggam criterion which defined the recognition of expert knowledge as one of the marks of an educated man. These tender locutions are prompted by a recent comment of the omniscient Brisbane relative to the pseudomedical cult called osteopathy. After calling attention to the fact that osteopaths are celebrating a "normal spine week," the omniscient one proceeded:

> Osteopaths today take the place of doctors and doctors cannot do what osteopaths do, because they haven't learned that in the human body the skeleton is as important as the steel frame in a skyscraper. It is as dangerous to have a bone pinching a nerve as it would be to have an iron beam cutting off an electric light wire, or a water pipe. Mayor Walker, of New York, on his way west for a rest from overwork, stopped in Chicago for an osteopathic treatment. Wise mayor.

By a fatalistic coincidence which omniscience might have anticipated, the eulogy of Mayor Walker appeared on the same day that a group of indignant citizens petitioned the governor of New York for his removal. This, of course, has nothing whatever to do with osteopathy. The analogy between pinching the nerve and an occluded water pipe is a typical Brisbane analogy: he makes science so simple that his comments are perfect for the simpleminded.

MEDICAL ECONOMICS AND MEDICAL BUSINESS

For some time physicians have been receiving regularly and complimentary a publication known as "Medical Economics: the Business Magazine of the Medical Profession." The contents of this periodical are devoted largely to the problem of making money out of medical practice. It is apparently little if at all concerned with medical ethics or medical ideals, except so far as these may interfere with the matter of making money. Indeed, the ethics and ideals of the publication itself would seem to be controlled largely by such a point of view, since the vast majority of its space is devoted to the advertisements of products of many manufacturers whose preparations could not possibly be passed by the Council on Pharmacy and Chemistry of the American Medical Association. Moreover, even those manufacturers who cooperate largely with the Council find in this alleged medical publication an outlet for the announcements of their products that the Council will not accept. The periodical serves perhaps thus as a directory of unscientific and unacceptable therapy. At a time when economic considerations may make many physicians hesitate on the borderland that separates high ideals and strict honesty from commercialism and unethical conduct, a warning is perhaps in order against the following of strange gods. While the periodicals of the organized medical profession are trying to make physicians realize that only the maintenance of the traditional ideals of the profession can avert attempts by corporations and by the state to reduce medicine to a trade, such commercialized publications as "Medical Economics" are endeavoring to make the physician essentially an advance agent for the manufacturers of nostrums and unscientific proprietary preparations. The periodical comes to the doctor for nothing, a price that is perhaps beyond its merits. There is an old, old proverb that seems to require frequent repetition: "Beware the Greeks Bearing Gifts."

1. "Omniscient"—a word from the Greek interpreting the three Japanese monkeys which see all, hear all, know all.

Association News

THE PHILADELPHIA SESSION

Notice to Motorists

Dr. S. Leon Gans, president of the Physicians' Motor Club of Philadelphia, invites members of the Association who will drive to Philadelphia for the annual session of the Association to take advantage of the facilities of the Physicians' Motor Club.

Motorists are requested to secure credentials from the Physicians' Motor Club at the time of registering at the annual session. Through these credentials, special parking privileges may be secured and the purchasing power of the Physicians' Motor Club will be made available, including reduction in the prices of gasoline, oil, automobile accessories and certain merchandise for personal use. A list of designated garages with parking facilities at minimum prices will also be provided.

The office of the Physicians' Motor Club of Philadelphia is at 2122 Locust Street.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:45 on Tuesday, 9:15 on Thursday and 10:30 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

April 27. Cancer of the Breast.
April 28. Facing Cancer with Courage.
April 30. Scarlet Fever and Measles.
May 2. Lessons in Relaxation.

Five minute health talks may be heard over the Columbia Broadcasting System daily, except Sundays and holidays, from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

April 27. Hazards of Youth.
April 28. What Happens to the Tuberculous Child?
April 29. Periodic Health Examinations.
April 30. Periodic Health Examinations.
May 1. Health Measures.
May 2. Measles is a Dangerous Disease.

CONTRIBUTIONS FOR MEMORIAL SALON IN PERSHING HALL

The sum contributed this week to the Pershing Hall Memorial in Paris brings the total to $2,320.60. A list of those who have contributed during the current week follows:

H. Winnett Orr, M.D., Lincoln, Neb.
Howard J. Ludwig, M.D., Buffalo
Adam T. Finch, M.D., Chase City, Va.
J. S. Robison, M.D., Salt Lake City
Mount Sinai Hospital, Hartford, Conn.
J. Mott Crumb, M.D., South Otselic, N. Y.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Twenty-Seventh Annual Meeting, held in Chicago, Feb. 16, 17 and 18, 1931

(Continued from page 1319)

DR. CHARLES B. PINKHAM, Sacramento, Calif., in the Chair

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

FEBRUARY 17—MORNING

MEDICAL EDUCATION AND LICENSURE

Responsibility of Medical Schools to Registration and Licensure

DR. BURTON D. MYERS, Bloomington, Ind.: Examination of the functions of medical schools and of state boards reveals a certain duplication of effort. For instance, in the matter of registration of students, medical schools go into great detail in the evaluation of credentials of applicants for matriculation. In some schools full time deans with clerical staffs and with much experience of their own and of other schools at their command carry out this function. In all schools, trained examining bodies carry on this work. It is fair to assume that registration of medical students is carried out more effectively in most medical schools than is possible in the average political board of medical registration and licensure, often with changing personnel; also that the whole matter of medical registration is one which state boards might safely leave entirely to medical schools. In other words, the function of registration once exercised exclusively by medical schools, and then for political reasons delegated to medical boards, may now safely be turned back by medical boards to medical schools.

In licensure, the matter is not so simple. There is the consideration of the medical school, its plant, its equipment, its staff, the number of full time teachers and their training, its budget, its library, its budget for periodicals in each department, its hospital facilities, the integrity of administration of requirements of all sorts. These considerations determine eligibility of schools to membership in the Association of American Medical Colleges and the eligibility of the graduates of the school to the licensure examinations of the several states. The question is, Do the administrative officers of the Association of American Medical Colleges keep such check on their members that they are sure all members have continued to merit place in the association? Eligibility of members of the Association of American Medical Colleges should from time to time be so carefully scrutinized that the state boards would be justified in accepting graduates of members of our association as eligible for licensure examination in any state of the Union. All that is necessary is a more adequate budget which will make more frequent inspections possible.

Preparation of Foreign Medical Graduates for the Practice of Medicine

DR. W. C. RAPPLEYE, New York: An increasing number of American students are seeking admission to European medical schools largely because of the number of applications in excess of the capacity of the medical schools in this country. Many foreign students also endeavor to secure a license to practice here. Almost one third of the applicants for licensure in New York, for example, are foreigners.

Probably the most characteristic features of medical training in Europe as a whole are the considerable differences between the plans of the different countries. Within each country there is usually a well established standard of medical education, and the differences between medical schools are not marked. Perhaps the greatest differences are in Great Britain, particularly in those schools which aim to provide a training above the minimum standard. In all countries the medical course is based on a strong system of secondary education which provides a preparation corresponding roughly with completion of a junior college or the first two years of college work in this country. Students in Europe are several years ahead of our students in their educational development at the time they are ready for the university and the medical school. Several years have been saved in most European countries by the time the student begins his medical course. Secondary education in general has been a highly selective process and has been regarded seriously by authorities and parents in all European countries.

More than 800 American students applied for admission to the first year class of the medical school at Edinburgh this year. The General Medical Council and several of the licensing corporations have recently adopted regulations governing the admission of American students. For many years the University of Edinburgh has utilized a system of dispensary teaching which provides a type of practical experience in the homes of patients. Each student is required to spend two periods of three months each on dispensary service and must report in full on forty cases that he has had under his care before he graduates. The training in each country of Europe possesses certain characteristics, but everywhere primary consideration is given to the preparation of physicians for the practice of medicine.

State Board Examinations

DR. WILLIAM JEPSON, Sioux City, Iowa: The evolution of medicine has reached a stage at which serious notice should be taken of the fact that in serving the public it is doing so largely through a number of specialties and that men often assume the duties of these specialties without adequate preparation. Medical practice acts are based on conditions existing at least three quarters of a century and more ago, at which time the specialties were practically nonexistent except surgery and the subspecialty of ophthalmology and dentistry.

The practice of medicine today in its broadest sense consists in the diagnosis and care of such diseases or pathologic states as require no mechanical or operative procedures for their cure. This is the domain over which the internist holds sway and for this service present state board requirements are believed to be adequate, except in its specialties. Then there is that other service consisting of the employment of operative procedures for the alleviation or cure of disease dominated by surgery and its many specialties. This service cannot be rendered efficiently without adequate training, as it requires a high order of dexterity, which can be acquired only at the expense of much time and labor. For this service the present requirements testing only the candidate's theoretical knowledge of medicine are quite inadequate as they do not take cognizance of the skill required. Yet in issuing to him this license, boards grant to him the legal right to go and do any and all classes of work. The public is not being fully protected against incompetent practitioners in these specialties. The medical profession will before long awaken to the injustice to the public in permitting men to practice surgery or any of its specialties without their being properly qualified through practical training for a period of two or more years in hospitals, after which he should pass a thorough theoretical and practical examination before a competent examining body consisting of at least three men, two of whom are professors in a class A school and the other member a prominent man practicing the specialty. The candidate should spend an adequate time, say one week, with each examiner so that the opportunity might exist for thoroughly testing his qualifications.

That similar views are entertained by others is evidenced by the fact that the majority of these specialties have, through societies dominated by their membership, already sought means of correcting it. Thus, the practice of dental surgery has for long been limited to those especially trained and qualified, and yet who would say that surgery of the teeth was of more impor-,

tance than surgery of the abdominal, intrathoracic or cranial organs and structures?

As the state boards of medical examiners of the various states are the only bodies legally authorized to grant the right to practice medicine in its various fields of activity, it would appear that these bodies acting concertedly and with the aid of the various organizations representing the specialties should determine the degree and character of work necessary for the pursuit of these various specialties and the character of the examination required for licensure and by whom conducted. The laws do not permit state boards to issue a license except such as entitles the licentiate to pursue any and all activities of the medical profession; yet it is believed that if all or almost all state boards were to issue a certificate of proficiency in these specialties even though at present they would have no legal value, it would go a long way toward getting the various state legislatures to recognize their value in safeguarding the community against incompetent practitioners and remedial legislation might follow; in fact, this is believed to be the surest and quickest way to secure a solution of the problem.

DISCUSSION ON PAPERS OF DRS. MYERS, RAPPLEYE AND JEPSON

DR. J. STEWART RODMAN, Philadelphia: Research is essential to progress, but the chief reason for the existence of any medical school is to turn out safe practitioners of medicine. Most educators are coming to the point of view that all class A medical schools are capable of doing that. I agree with Dr. Myers, however, that the time is not yet when an external check-up on admittedly good medical education can be dispensed with. A given faculty is not necessarily the best judge of a student's fitness to practice. A qualified board, perhaps connected with another university, can get a better idea of that candidate's fitness after a thorough examination into the fundamentals, but even more important than that, into that candidate's ability to apply these fundamentals to actual practice. It would be well if a comprehensive examination could be begun of the sort that is fit to determine a man's ability to practice medicine, and his progress in the medical school from the laboratory to the clinic, from the clinic to the hospital, and from the hospital to registration and licensure could be combined with it. Certainly a real service would be done for the harassed medical graduate at present. I found much to admire in the British system. One thing is the liberality of legislative control. I often think that it wouldn't do any harm to be a little bit more liberal in control. These countries have developed a system of medical education and licensure that is adapted to their needs. It does not necessarily fit into the picture in this country.

To be fair to our own class A graduates we must insist that these men attend a school that is in every way comparable to our class A schools, but that isn't sufficient; whether they are citizens of the United States or not before they go over, they must demonstrate when they come back. Having attended a school in all ways equivalent to our class A school, they should demonstrate to a board of examiners that they are thoroughly prepared in the fundamentals and, more important still, in the ability to apply those fundamentals to practice. If they can do that, and if we have been able to check up on their medical education abroad, which I will admit is difficult to do, I think they are then fit to practice over here. I may say that a good many of these men who take the National Board examination fail to pass. They no doubt know medicine, but they are not adapted, perhaps, to our system of examination. Dr. Jepson mentioned the desirability of having some control over the specialties. The public has to be educated to the fact that one must be qualified in a specialty, over and above having a medical diploma, when he is fit to practice that specialty. But it seems to me that actual legislative control is certainly one way to do that. If a candidate has graduated from a class A medical school, has had a good internship, has served an apprenticeship of at least three years, or has attended a graduate medical school and has demonstrated his fitness before a board of qualified examiners in the specialty in which he seeks to qualify, he and he alone is fit to practice that specialty. I don't believe that belonging to special societies or passing examinations that must of necessity be limited and brief and cannot offer any real part in the field of that specialty will suffice.

DR. G. M. WILLIAMSON, Grand Forks, N. D.: No student or candidate for licensure has been accepted in North Dakota since 1912 who has not had two years of college training. If all who practice the healing art could be compelled to have at least two years' training in a college of liberal arts, it would be about all the basic science law that would ever be needed. I am not sure that it is the best plan that graduates of class A schools should be handed a license when they come out. I am not ready to give up an oral examination. There are two or three reasons for that oral examination. A fellow may be a good chap but when his history is looked up he is found to be undesirable. If one doesn't want him to come to one's state he can be asked such questions as will keep him out. I think that all representatives here will admit that they have licensed men who, after a few years, they were sorry they licensed. I make it a practice to write a letter to the secretary. Sometimes I state why I have to withhold an endorsement if he presents his application for reciprocity. I hope to see the day when some qualification, more than now exists, will be exacted of men practicing specialties. I should like to see the time when a man, if he is going to be a fellow of the American College of Surgeons, will have to pass a board examination or get some sort of credentials and be so certified that it will be known that he is a real surgeon and is not one that just pays his fee and becomes a Fellow of the American College of Surgeons.

DR. J. H. J. UPHAM, Columbus, Ohio: The only reason for the existence of this body and the boards in the various states is to see that the public is furnished with properly equipped practitioners. When most of our laws were passed there were great numbers of colleges of all sorts all over the country. It was essential that they should be graded, that they should be passed on to see that they were properly equipped. Matters have changed. Medical education in the United States today is on a far different plane and on a satisfactory plane. Graduates of class A medical colleges now are thoroughly prepared, after a year's internship, to practice medicine. I feel that the continued inspection of these colleges is necessary. Many of us have practically delegated the power of inspection to the American Medical Association and accept a guaranty of the Association of American Medical Colleges as to the condition of the class A medical schools. There is a tendency toward too much standardization. Sometimes teachers in various faculties get rather too narrow a point of view. It seems from what Dr. Rappleye has said that the attention of the Association of American Medical Colleges might be called to the value of earlier contact with the patient as carried on in foreign countries. I cannot help feeling a great deal of time is being lost in the examination of graduates of class A institutions and that a great deal of uncomfortable labor is being done in grading the large number of papers each year. Practically all the class A graduates do successfully pass the examination. After the student has graduated, the greatest problem is the graduate who feels that he is a finished product and does not have to learn any more. It would be unpopular to suggest repeated examinations or licenses granted for five years, but I believe that something of that sort will have to be considered for the future. I believe that a start, at least, could be made by requiring reciprocity students, after five years, to pass some sort of an examination. A number of states now require all reciprocity students to take a practical examination. I believe that that could be extended as a general thing and all reciprocity students, after a period of no longer than five years, at least, be made to take a practical examination in certain subjects. I agree with Dr. Jepson with regard to the specialties. This will require changes in our fundamental laws. I do not think that the present method of special societies holding examinations is satisfactory. There should be some test, some way of demonstrating to the satisfaction of a legally qualified board that an applicant is qualified to practice a specialty.

DR. WILLIAM R. DAVIDSON, Evansville, Ind.: In Indiana there is but one school, and it has seemed best, by agreement, that all the evaluation of credits be conducted by the univer-

sity, as he has described. That has seemed best for a number of reasons. He has the benefit of the deans of the academic department. It has been practical, so much so that at times we have even called on him in cases of reciprocity when it has seemed best. The examination, if properly conducted, certainly can determine a man's aptitude, particularly if they follow the method being used in Indiana. Our board is gradually getting over to the case history method of examinations. Since adopting that in my own subjects about five years ago, I have been amazed to find the difference in the degree of the answers, because no man can take those examinations, every one of which is a case history, however brief it may be, without showing some knowledge that he has gone through an adequate training. It comes down to one thing, and that is mutual confidence. I believe that exists in the medical profession and among medical schools more than in any of the other professions. The present system of state board examination is the best method yet offered in America.

DR. JOHN W. MACCONNELL, Davidson, N. C.: It is the function of a state medical examining board to pass on the requirements of the applicants. Our state accepts the diplomates of the National Board of Medical Examiners. We still reserve the right, if we choose, to reject them. We are not obligated to accept them. But I would be slow to give to a graduate of a class A medical school the right to practice in our state, because there is entirely too much difference in these class A medical schools. There is too much difference between the graduate in the low percentage of a class and the graduate in the high percentage of a class. It would be unwise for the state licensing boards to do away with the examinations.

DR. THOMAS J. CROWE, Dallas, Texas: A uniform practice act is necessary, uniform for every person who would attempt the treatment of the sick. The moment those men are educated on pathology and technical subjects, they will forget the nonsense they had in their heads ten or fifteen years ago. Why not try it? How shall it be done? There should be an organization of all medical allied professions all over the United States in every hamlet. When the public has been educated through local representation, the legislature will enact laws.

DR. HAROLD RYPINS, Albany, N. Y.: It seems to me that a paradox is being developed. There is a definite expression of opinion, which has some basis that the state board is not particularly proficient in examining undergraduates to practice medicine. On the other hand, some are recommending that competent boards examine men to practice the specialties. They can do one; they can't do the other. There should be a sharp distinction drawn between the ideal of licensing and regulating specialties and the machinery for accomplishing that end. I think we are just beginning to feel that we should not work toward the end of regulating the practice, or at least the advertising of specialists. But we have been thinking about it such a short time that we are in danger of setting up some type of machinery to accomplish this end without thinking carefully enough as to whether or not that is the proper machinery. It is much easier to get a bad piece of legislation on the statute books than it is to take it off. I should like to warn you all to be very cautious in bringing about any state legislation whatever, and in no case to urge any state legislation to govern the regulation of the practice of specialties, if it is in any way possible to accomplish it within the profession without the intervention of the state. The state is the court of last resort. I think by a sufficient amount of good hard thinking we may be able to accomplish the end which we desire without the cumbersome and difficult and inelastic process of state legislation in control.

DR. H. M. PLATTER, Columbus, Ohio: I do not believe that the time will ever come when class A medical schools should be given their free way without some state board supervision. The original diploma gave one the right to practice medicine and surgery in all its branches. When a mandatory examination for a specialty is set up, the original definition of the practice of medicine is going to be curtailed; at least that is what the attorney general of Ohio told me. I don't know how one is going to get away from that proposition.

DR. F. C. WAITE, Cleveland: The thing that is being suggested, letting the diploma carry the license, is just what has caused all our difficulties for the past fifty years. If, following the Civil War or just before the Civil War, when the state board examinations came in, we had said that all men, whether they held diplomas or not, must be examined, most of our troubles would never have happened. But what was said was that the man that held a diploma didn't have to take an examination. All those institutions were founded not primarily to train the man but to get him into practice without taking the examination. If that is done, one invites the same sort of thing of other institutions to give diplomas that will lead to practice. If class A medical schools are let in, the legislature will make it necessary to let in class A osteopathic schools, mechanotherapy, neuropathic, and everything else. That is the prime danger in the thing. The licensing board of today is primarily a thing to allow the profession to determine who shall come into it. If physicians turn over to the schools which are not in the profession (they do not represent the profession, they represent another profession, education) the determination of who shall enter the medical profession, they have lost control of their profession.

DR. BURTON D. MYERS, Bloomington, Ind.: Examination is an incidental function of the boards. The major function of the boards is the protection of the health and lives of the people of the states. Just so long as one argues on any other basis, one is arguing on a false basis and is bound to reach false conclusions. Regardless of what the sect of the individual is, every man should take that same examination in the fundamentals. It would be far better to have an osteopath on the medical board if by having an osteopath on the board one can require osteopaths to conform to the same fundamental requirements, premedical and preclinical, that are required of regular graduates. One can't license the graduates of my school and refuse to license the chiropractors and get by with it in the legislature. They are going to insist that the chiropractor must be examined; your graduate must be examined, and you have to submit to it.

DR. WILLARD C. RAPPLEYE, New York: Regarding the numbers of students admitted to the medical schools abroad, there are no universities that I know of abroad that will not take all the applicants that are qualified for admission to the school. The result is that there are medical schools over there with 1,200, 1,500 and in some instances 2,500 medical students. But they do not have any system of rejecting the students except those who do not meet the university requirements. Anybody who meets the university requirements can get in. I don't know what Dr. Rypins meant about the other comment. It is the first time I ever heard about his having any qualm about saying anything, so it is all right. The question of how much could be transferred from the desirable aspects of medical training abroad to this country is hard to answer. There are medical schools in this country that have no ambition, particularly, to train men for medical practice. A great deal is done in this country to unfit the student psychologically to study medicine. There is one thing that is characteristic of medical training in most countries abroad that is far different from ours; namely, that the responsibility for the medical training is on the student and not on the faculty. It is quite a different point of view. They pay no attention to the students that are unable to negotiate their examinations and take their courses, except to pay their fees; they are interested in that. But they pay little attention to the student that does not get through his examinations and does not show some evidence of achievement. The postgraduate medical organization is well organized in Germany under a central committee that has its own headquarters and controls eighty teaching centers at the present time throughout Germany. England is beginning to do the same thing. I should think without doubt that a student taking the regular medical course and internship in the University of Paris or Strasbourg has had more clinical training than our intern, plus his medical training. I think without doubt that he has had eight years of it. Certainly, in Sweden, for example, where a student has spent ten years, at least six of which is in clinical medicine, it is more than equivalent to our medical course plus the internship. The Italian schools, by and large, give a less satisfactory internship than the British, French or German.

FEBRUARY 17—AFTERNOON

DR. CHARLES B. PINKHAM, Sacramento, Calif., in the Chair

STATE BOARD PROBLEMS

Operation of the Basic Science Law in Wisconsin

DR. J. GURNEY TAYLOR, Milwaukee: Medical societies have had the purpose of elevating the standards of the medical profession and protecting and promoting the public health. It was the conviction in Wisconsin that measures continually to improve the medical practice act were not accomplishing a complete public health protection; this led to the adoption of the first so-called basic science law of this country. The quacks and quackery of 1850 had grown in Wisconsin by 1925 to the point of being a tremendous public health menace. I venture the assertion that a like condition then existed in many states.

Medical practice acts had not made appreciable headway in protecting the public against quackery outside of the profession. Where the definitions of practicing medicine were insufficiently broad, cultists had sprung up whose activities were constantly found proper in court. Where the definition of what constituted the practice of medicine was broad, court actions saw shrewd defense attorneys arguing that, if internal medication was not advised, the client was not practicing medicine, and that the prosecution was based on professional jealousy as evidenced by the success of the client. Too often were excellent medical practice acts thus nullified when used to curb quackery.

As business makes regular audits to ascertain its position, so did we in Wisconsin make our own audit of conditions as they existed. With the results before us, we declared to the legislature that the medical practice act was failing to give the public health protection. We stated that there were those in actual practice who were daily jeopardizing the community health. From a public health standpoint alone we urged the passage of a law that would give the public assurance that all who treated the sick would at least be qualified to exercise care and skill in making a diagnosis. Now, five and a half years later, the quack who attempts to begin practice in Wisconsin is arrested for treating the sick without having an education that was sufficient to enable him to pass a simple and basic test. Here is a charge any lay jury can understand; herein lies no opportunity for a defense of nonadministration of internal preparations or for a newspaper tirade. The definition of "treating the sick" is all inclusive. He who treats the sick cannot evade it.

The legislature has given to the state board of medical examiners from the general funds of the state an appropriation sufficient to employ a full time investigator. This evidence he places in the hands of the district attorney. Our experience indicates that the average state officer does his work well. The unlicensed do not treat the sick long in Wisconsin. Prior to the enactment of this law there were upward of 200 uneducated coming into Wisconsin each year and actually practicing in spite of our then supposedly public health protective legislation. Today there are none who last beyond the first call of the investigator and few who try. We find that where we could rarely secure prosecutions for violations of the medical practice act, today the average law violator pleads guilty without trial.

How about the medical profession? Does not this new law work a hardship in requiring of the graduate in medicine two examinations instead of one? Does it not hamper licensing by reciprocity? I would say "yes" with qualifications. Two examinations are required, but the board of medical examiners can remedy that whenever it chooses, for the law provides that we may accept the basic science examinations in lieu of our own in those subjects. I reflect the honest attitude of the medical profession of Wisconsin in saying that the physicians would willingly put up with ten times the inconvenience of the present law to secure for the people the present degree of protection.

Nonmedical Directors of State Departments of Public Welfare

DR. H. J. LEHNHOFF, Lincoln, Neb.: In 1919, Nebraska adopted the code system of administration. The department of public welfare was one of six departments created. The law does not state that the secretary of the department of public welfare shall be a layman. During the first two years under the code system, the department was in charge of a nonmedical man, for the next two years it was in charge of a physician, and for the last six years it has been in charge of an attorney.

There are probably some advantages in having a layman in charge of the department. If there is a physician in charge there is apt to be more friction than if there is a layman in charge. This is particularly true as regards the attitude of the osteopaths and the chiropractors. There has been no friction between the laymen who have had charge of the department of public welfare during the past six years and the osteopaths and chiropractors. These cults think that, since a physician can be in charge, it might be possible for a representative of their cult to be head of the department of public welfare. Such a circumstance is possible. Anything can happen in politics. In the Nebraska legislature in 1926, the chairman of the committee on medical societies of the house of representatives was a Christian scientist. This year, the chairman of the committee on medical societies in the senate is a chiropractor. All in all, a layman meets with less friction than does a physician in meeting the problems that come up as regards our relationship with the cults.

Some of the problems coming before the child welfare bureau are medical problems. Under the system there are ways by which medical problems can be referred to a physician. There are many problems that come before the department that are not medical problems. We think that Nebraska has been fortunate in that the last two secretaries of the department have been men well qualified in law administration. They are both men of high character and good judgment. Now, what is the advantage of having a physician in charge rather than a layman? The majority of the duties of the department are those that pertain to medicine, the practice of medicine and the allied professions, and the matter of public health. These duties and problems need not be enumerated here. They are well known. It is natural to conclude that these duties and problems could better be under the guidance of a physician. Of course, he must have the capabilities naturally sought in a layman whom we would put in charge of the department, with a broad knowledge of medicine, sanitation and public health.

There is another point: The problem of state medicine is before the profession, constantly knocking at our door. As a rule we do not feel that this form of medical practice should be carried too far. To surrender the department of public welfare to a layman is probably surrendering some of the jurisdiction of the medical profession. The more we permit laymen to take charge of bureaus and organizations which are created to execute projects that are medical, the more we approach the status of state medicine. While the profession is not wont to surrender these positions, I feel that we are doing so. We permit laymen to have charge of child welfare societies, of tuberculosis associations, physicians have pretty well dropped out of the Red Cross movement, and many organizations interested in mental hygiene are under the direction of laymen. A conference was called by President Hoover to consider child welfare, and out of fifty-two members of the President's committee, one was a physician. The more that members of the profession relinquish positions that have to do with health matters, the more we are approaching the status of state medicine.

Briefly, the secretary of the department of public welfare should be an executive, with good judgment, and with a personality that does not create conflict and that without offense irons out minor differences of opinion. He should be able to some extent to interpret law. He should have the ability to correlate the activities of the several subdivisions of the department. If we could have these qualities in a physician, and in addition have in that physician an individual who had a knowledge of things that apply to medicine and public health and their allied branches, such a physician would be sought.

Who Shall Be Permitted to Continue the Practice of Medicine?

DR. FREDERICK C. WARNSHUIS, Grand Rapids, Mich.: For twenty-five years, medical colleges, medical organizations and state licensing boards have been chiefly concerned with standards of medical education and the educational requirements of individuals in quest of a license to practice. While criticism and

some dissatisfaction are pertinent to existing standards, there is evidence that grounds for such criticism are progressively being removed. Is not the time at hand when we should become intensely concerned with the solution of the problem—Who shall be permitted to continue the practice of medicine? The answer will not be formulated in a day. In a quest for a solution, the following suggestions present themselves:

1. Periodic reexamination. This may be promptly dismissed as impossible, impracticable and calling-up of many legal injunctions and technicalities.

2. Legal enactments requiring the filing with each board of a certificate attesting that the licentiate has pursued, during five year periods, the graduate work that the board prescribes. Such a board requirement seemingly presents one possible solution of our quest—to keep doctors competent and capable of rendering a high type of service to their communities.

3. In recent years there have sprung up a varied group of "colleges." To gain fellowship, a candidate has to have an established reputation or he must submit a series of case histories and evidence of professional attainments. Such a requirement by state boards demanding the submission of some such evidence of practice standards every five years deserves consideration.

Certification of specialists is now required in Norway and Sweden. The province of Alberta has already embodied it in legislation. New York and New Jersey are considering such legislation. Michigan has a bill before its present legislature providing for the licensing of specialists. I would urge that we formulate standards of educational requirements and training for any given field or "specialty"; that we promulgate rules, or if necessary obtain legislative enactments that will authorize us to issue certificates that will attest to the public who is or is not a capable specialist. The standards for specialists should not be arbitrary or mechanical. Their specifications should be kept out of the statutes. Boards should institute a movement whereby the Council on Medical Education and Hospitals of the American Medical Association or a special commission appointed by the American Medical Association will consider and set up the minimum requirements that are to be met ere one is certified to as being a specialist.

DISCUSSION ON PAPERS OF DRS. TAYLOR, LEHNHOFF AND WARNSHUIS

DR. I. D. METZGER, Pittsburgh: One wonders whether the more exacting means of enforcement attached to and incidental to this law is not the cause for the improvement aside from any special nonprofessional virtue in the act itself. I am wondering whether in our eagerness to control illegitimate practitioners we do not sacrifice a very important element in the development of legitimate practitioners of the healing art by professional preparation under the shadow of such a law. The integrity of the course of study followed in any school is determined largely by the ends to be gained by the student. If the purpose is only to pass a technical examination, his interest will center on the details of the branches studied with little concern as to their practical value beyond the examination. I fear that both teaching and learning under the science law may fall short of meeting the ultimate purpose of a well correlated medical course, the development of a cultured artist in medical practice. Better, some think, make a critical inspection of the schools giving these courses and accredit their students with the possession of an adequate knowledge of scientific technic without any further examination, except, eventually, to determine the candidate's ability to apply this technical knowledge to clinical needs. The peculiar type of examination given by the Wisconsin board, and the fact that all applicants must undergo this technical science examination regardless of the time of graduation, would appear seriously to hamper interstate relations. Within itself it may matter little whether an administrator is a layman or a physician so long as the individual types of examinations are safeguarded and given by suitable representatives. The concession of physicians to cults that their field of practice has a separate entity leads the public to think that this or that form of practice in a detached form offers values in all conditions of human need. We must constantly emphasize the greater inclusive character of general medicine and the ability of the physician, because of this broader training, to encompass all these individual fields of practice. In fact, we should know the value of each of these branches of medicine and apply it sanely to cases in conjunction with any other indicated treatment. Along with this tendency to segregate forms of treatment follows the modern trend of detaching social and political agencies that have to do with public welfare from the direction and influence of the profession. Ere long, perhaps soon if we continue to slumber, these regulations in profane hands will become our masters instead of our servants. State medicine, like state religion, is unthinkable as an American institution. If, however, it loses its altruistic spirit and becomes a mere commercial procedure, then the state can administer it more economically to its citizens than private practitioners. As prophets who foresee the signs of the times, we should reconsecrate ourselves to the high idealism and to the sacred responsibility to the individual which traditional medicine has given us.

DR. HENRY M. FITZHUGH, Baltimore: What is it that has gone on in the last generation which makes the medicine of today so superior to the medicine of thirty or forty years ago? Is it the laws against quackery, or is it fighting irregulars? Has that had anything in the world to do with the advance of medicine? Is not the advance of medicine due to the wise action by the leaders of the profession in improving medical education, improving the standards, and the lateral action, the concomitant action of the state boards in improving the standards and not admitting persons to practice unless they are well qualified? What has gone on in medicine itself is responsible for the improvements. I suggest that perhaps the best thing for rational, ethical medicine to do would be to form a great big Mind-Your-Own-Business Society. Then let the other fellows do about as they please. The thing that decides how long a sect or a cult or an individual or an idea lasts is whether it is any good or not. It can be stimulated; it can be helped; it can be propagandized by opposition. If it is let alone, it generally dies. If we would form a Mind-Your-Own-Business Society and stick to it, our business would be to search the fields of science and research and knowledge, and select whatever will be of any use to us in our endeavors to relieve and prevent disease. The second part of business would be to develop our personnel to include in the great profession people of such character and ability as to provide first class medical service for the community. The third part of our business would be to develop instrumentalities by means of which the personnel could make the knowledge effective, hospitals, clinics, whatever is necessary to make knowledge effective. Think of the doctors themselves. We are a representative body of men, but we are not so hot. We don't know what gives a fellow a cold in the head. We talk about filtrable virus but we don't know much about it. We are fighting cancer, but more are dying of it every year. It is the same with heart disease. The public isn't terribly concerned about being protected. People want a chance to do what they please and pick out the best man in the community.

DR. N. P. COLWELL, Chicago: In our study of graduate schools, we have gotten to the place where there are two well organized graduate medical schools which are issuing higher degrees in medicine. We look at it as a beginning. One of them is the University of Minnesota and the other is the University of Pennsylvania. A man who wants a doctorate degree has to get his additional work. In Pennsylvania they call it Doctor of Science in Medicine. At these schools the larger number are those who get the Master of Science, but it is felt by the Council that is high enough so that those are worthy of being recorded in our directory. It had not gotten to that point heretofore, but now the numbers are getting large enough, so that a doctor who already has his M.D. degree will also have recorded after his name the work he has taken by which he has deserved and secured this higher degree in medicine, and it is usually in some specialty. Those schools are worthy of being approved by the Council as approved graduate medical schools. We are soon to have a third school of that sort. You can see how it is coming about. That is the merger of the New York Post-Graduate Medical School, which has been kept on our approved list from the beginning. That school thus far has not only had short courses, for doctors to brush up, but also well organized courses of two or more years leading to this higher degree in medicine. As years pass there will be other graduate schools which are found worthy. As they are

found worthy they will be added to that list. In time there will be a lot of actual knowledge regarding each of these men posing as a specialist, in place of the present unsatisfactory knowledge.

DR. THOMAS J. CROWE, Dallas, Texas: I have in mind the word "quack." That word as we use it in the press, in public addresses in meetings and elsewhere has done more to retard the progress of scientific medicine than any other word in the English language. It never pays to ridicule, and abuse is a dangerous boomerang; not infrequently it returns to do injury to the man who threw it. The thing for us to do is to forget about all those fellows and go out and educate the public to the value of scientific medicine. There are a thousand ways to do it ethically and in a dignified manner. I don't believe a man should be licensed in any specialty. I think that is within the province of the hospital. Put it up to the hospitals; they will do it. Let them tell a man that he cannot use their operating room or operating service because he does not know anything about it. I think those are the lines along which we should work and along which we can surely, and perhaps not rapidly, make progress.

DR. B. R. CORBUS, Grand Rapids, Mich.: Just now we are interested in what the legislature is going to do about the cults. Every two years we go through the situation, and we keep them restricted only by the narrowest margin. Having been chairman of a small executive committee of the Council, I am getting tired of it. I don't think we are getting anywhere. I am not sure that it would do us, as doctors, any great amount of harm if we let the people have the things they want. I think it is time that the public fought its own battle. The point is to educate the public so that it will do something toward self protection from the incompetent man. We have been trying for some years to make better doctors. For ten years we have had postgraduate conferences. We have sent out men to the rural communities to give one and two day conferences. We have had 125 men at meetings where they have come as far as 150 miles. If you will raise the standard of your doctor you will do more than by fighting in the legislature. The Michigan State Medical Society was able to start, joining first with the University and using its Extension Bureau and Public Health Extension Bureau, a Committee on Public Health and Education, who send out men, not all doctors, to meet the people and the school children. Last year these men met 157,000 people. That, in the long run, is going to do good.

DR. H. M. PLATTER, Columbus, Ohio: Two years ago I conducted a survey of basic science as an enforcement measure. The reports that I got from the various states that enjoyed this great blessing were so meager that it was a shame—practically nothing. I am opposed to basic science as applied to the class A graduate. It has no business being applied to him, and that is what is wrong with the measure. If in some state they want to use it against the irregular, let them do it, but don't put an additional penalty on the man who has met our highest qualification and is a graduate of a class A medical school and licensed by examination in a state holding membership in this federation.

DR. WILLIAM R. DAVIDSON, Evansville, Ind.: We took the cults to a good trimming two years ago. During the session of the legislature now in session, they haven't shirked. We have a single board. There are three regulars, a "physiomed," homeopath, osteopath and chiropractor, who represent all the cults. Every man who seeks a license in Indiana takes the same examination. We haven't had a single chiropractor, naturopath or any one take the examination because they can't comply with the minimum requirements. The Federation of State Medical Boards should clarify the situation. What does reciprocity mean if it is a throw-back to twenty years ago? Reciprocity should mean that a man can go from one state to another without taking a lot of foolish examinations, provided he has once qualified by examination before the state board.

DR. H. J. LEHNHOFF, Lincoln, Neb.: There is a clause in our law which says that the basic science board can waive the examination from any reciprocal applicant that comes from any other state, having passed a legitimate board. We have no difficulty. This board waives examination from any applicant coming from any other state, through reciprocity. Some one asked what we would do if it were our power to change our basic science law. In the first place, I think the requirements to go before the basic science board should be raised a little. It only requires that a man should be a graduate of a high school. That isn't enough. The other thing is they require that they shall pass an examination in each subject with a grade of 75. That is too high. One of the hardships that it works is that the students in our state are required to take this examination before the basic science board, before they can come before the regular medical board. Chiropractors don't try any more. They have given up the state. I think our students would rather take the extra examination than go out and compete with osteopaths and chiropractors. They would rather spend the extra money and the extra time. However, members of the regular board have fixed up matters so that we don't require another examination. That is, we have rather combined the two. So in those subjects that are called basic science subjects, we have just one examination.

F. M. BRIST, St. Paul: I don't represent the basic science board in our state; I represent the state board of medical examiners. We have had the basic science law for four years. The basic science law in Minnesota provides that the board need not examine an applicant in the basic sciences if he has passed an examination in those subjects by the National Board or another examining board of another state or foreign country. A basic science law is one type of legislation that will control the irregulars. We are not having any new quacks come into Minnesota. We have only lost four cases out of about ninety. We don't have any difficulty getting the juries to convict them. The medical association has put on a speaking campaign at luncheon clubs to explain this basic science law and the medical practice act. We have been in practically every county in Minnesota. I have visited eighty-six counties out of eighty-seven in our state. I don't think the situation, so far as quacks are concerned, is so serious. I don't know what it is like in other states. But the condition undoubtedly was deplorable in Minnesota some years ago. It still isn't what it should be. But I have a lot of faith in the average member of that legislature, if this proposition is put up to him fairly and squarely. We don't attempt to bribe those people. It is true they are invited to dinners; they are all invited. It is a strange thing, and maybe not so strange, that the people who sponsor all these quack bills are lawyers. They are always the authors of those bills. We have a naturopath bill in our legislature. A lawyer in the senate and a lawyer in the house are the authors of those bills. To me as a lawyer I think the greatest thing about the basic science law in Minnesota is, first of all, it is the only law we ever had that defined the practice of healing. Secondly, it provides for a registration fee. That is of great value. That money goes to the medical board. It makes the medical board independent of that legislature, so far as appropriations are concerned. Minnesota's basic science law isn't perfect, but it went to our supreme court last September, and the opposition to the law was financed by money from outside the state. Our supreme court unanimously upheld that law. We had to resort to decisions from the states of Michigan, Maryland and West Virginia to have our law upheld, but we had it upheld. I can't point out any particular provision in our law that I think should be removed in order to make it a better law.

FEBRUARY 18—MORNING

DR. HAROLD RYPINS, Albany, N. Y., in the Chair

MEDICAL REGISTRATION AND LAW ENFORCEMENT

Relation of the Organized Profession to Medical Registration and Enforcement

DR. WALTER F. DONALDSON, Pittsburgh: The avowed purpose of a typical county medical society, of which there are approximately 1,500, in relation to the Federation of State Medical Boards of the United States, has been expressed in the following words: "To extend medical knowledge and advance medical science; to elevate the standard of medical education; to promote friendly intercourse among physicians; and to enlighten and direct public opinion in regard to the great problems of public health and hygiene, so that the profession shall become more useful to the public in the prevention and management of disease, and in prolonging and adding comfort to life." The purpose of the average state medical society differs but

little, and the American Medical Association relates its Council on Medical Education and Hospitals to our problems in the following sentence: "The functions of the Council on Medical Education and Hospitals shall be to investigate conditions of medical education, hospitals and associated subjects, and to suggest means and methods by which the same may be improved."

Representatives of the American Medical Association must give a great amount of attention to the type of medical practice which its members must follow in the future; and we must strive to maintain standards so difficult to attain as to be possible only to graduates representing the highest type of training and the finest form of independent thought. They must never be fitted into any form of socialized medical practice unless it be such as to guarantee the best medical service to the public and the maintenance of the highest social and professional standing of the practitioner of medicine.

Annual medical registration is in force in twenty-one states of the Union, and in some instances it may have been opposed originally by the organized medical profession of the state. Registration has proved a benefit in most states and will in the future meet with hearty support by the medical profession, especially if the annual fee is sufficient only to pay the actual expense of registration and publication but not the cost of enforcement. We need to see that the progress of medicine is recognized by law, and annual registration is a step in the right direction. We must strive to prevent the development in the minds of the public of half-truths, regarding the interest of the medical profession in law enforcefent. It is in the uncultivated field of favorable public opinion that the rank and file of the organized profession may render its greatest service to state boards for medical licensure, registration or law enforcement.

The members of the American Medical Association must not be content that their committees or councils have upheld the educator, the teacher and the licensing authorities. They must continue not only to support their representatives but to discuss proper licensing standards and law enforcement with their daily clientele. Results attained in 1928 and 1930 by the Medical Society of the State of Pennsylvania demonstrated there that public opinion and legislative support of proper educational standards react satisfactorily when every doctor's office becomes a forum for the discussion of licensing problems between doctor and patient. This compaign of public education regarding educational requirements was inspired by competent leadership and was financially underwritten by generous and far-seeing management in the state medical society. Furthermore, the Allegheny County Medical Society successfully opposed the reelection of a former member of the state legislature who consistently supported legislation designed to undo in part the work of the Pennsylvania State Board of Medical Education and Licensure.

Undoubtedly the most effective method of work established by the Council was the creation in 1905 of the annual educational conference, which was a direct effort to secure unanimity of action between the medical profession, the licensing boards and the medical schools. Another weapon, is THE JOURNAL, through which proper publicity is obtainable, particularly in the annual state board and educational numbers. The value of this publicity was exemplified by the revelations regarding the Connecticut Eclectic Board of Medical Examiners, published in April, seven months before a St. Louis newspaper, published its exposure of the Missouri diploma mills, which was after the Connecticut board of health had revoked the licenses of fifty or more physicians which had been irregularly obtained in Missouri. It is the privilege of licensing boards to request the help of state medical societies in the advancement of the interests of the public, and it is certainly the duty of the state society to cooperate.

The Control of the Unlicensed Practitioners

SOL ULLMAN, Albany, N. Y.: The unlicensed have no authority, under the constitution, under the state statutes or under any form of authority, to practice medicine. The unlicensed medical practitioner is not to be simply controlled. He is to be exterminated, if possible.

Speed is of the essence of proper prosecution. Delay often defeats justice. The prosecutor must be vigorous and yet fair when dealing with the wrong-doer. The prosecuting officer should be engaged in the enforcement of the medical practice act exclusively. The legal features of these prosecutions require constant attention and cannot be satisfactorily considered and handled by an attorney who is not regularly engaged on this work. We have found that suspended and stayed sentences on a first offense are usually more effective than prison servitude. The offender learns to respect the law. Quite often, after conviction, the quack goes to another state to practice his unlawful calling. It would be of great help in the enforcement of the law if a central bureau were created and maintained to which each state officer in charge would periodically send a record of each conviction so that a check up of the prior practices or convictions of the accused in all states might be possible.

It appears that licensed physicians in several instances have been part and parcel of the schemes of unlicensed practitioners. In the "control" of unlicensed practitioners, licensed physicians should do everything in their power to clean their own house of those members who have retarded the public officials in enforcing the law. Physicians must cooperate with the authorities in their warfare against those in their own profession who hide behind the professional cloak.

The salaries and expenses of those engaged in this work are not paid by the state. They are paid by the department of education out of the yearly registration fees of physicians, and the fines, penalties and forfeitures imposed on offenders, and the fees from the medical licensing examinations. By paying the salaries and expenses in this manner, complete supervision of the enforcement of the law is kept in the department, which is thus rendered free from political influences.

Effective action against unlicensed medical practitioners depends on: 1. A medical practice act providing for: (*a*) a definition of the practice of medicine; (*b*) adequate penalties; (*c*) a centralized enforcement bureau; (*d*) trained inspectors and investigators; (*e*) legal representatives exclusively engaged in the prosecution of the law; (*f*) adequate funds by way of registration fees of physicians, penalties, forfeiture and examination fees; (*g*) trial by court without a jury. 2. Vigorous and speedy prosecution. 3. Appropriate sentences on conviction. 4. Following up prior offenders. 5. Cooperation of the medical profession. 6. Publicity (*a*) as to the law and (*b*) as to offenders.

An American System of Medical Registration and Licensure

DR. H. M. PLATTER, Columbus, Ohio: Perhaps the greatest aid rendered us in our efforts to achieve an American system of medical licensure is contributed by the National Board of Medical Examiners. There is a decided difference between the continental and the American points of view. The first seeks only to guarantee the training and proficiency of the individual physician and his ethical conduct thereafter, while we in America attempt not only to do this but in addition to eliminate cult or irregular practice. In fact, in America each state has sought to improve on the legislation of a sister state particularly as it applies to the prosecution of the unqualified and unlicensed individual. In general, it may be said that nearly if not all departments of licensure have honestly attempted to discharge the duties lodged with them in conformity with their laws and, from our conferences as members of the federation where opportunity is given to discuss our individual problems in relation to the whole problem, there now has emerged a sound plan of general procedure simple in detail and susceptible for that reason of being made effective.

The adoption by the federation two years ago of a resolution recognizing the standards of the Association of American Medical Colleges as its own opened the way for the development of an American system of licensure. Our duties for the future seem to me to include a careful scrutiny of the credentials of the individual applicant by each administrative department to see that no fraud has been practiced, his examination by a competent legal body, the supervision of his conduct as an ethical practitioner thereafter and the prosecution of irregulars and incompetents. I urge the necessity of a uniform and simplified manner of procedure. Particular emphasis should be placed at this time on our procedures in prosecution. The enactment of basic science laws in several states seeking to control and to eliminate cult and irregular practice complicates licensure and

in this particular these acts have been repudiated by the federation. I am of the opinion that the requirement of an additional basic science examination of class A medical men cannot be defended on any ground. It is a requirement in excess of our agreed on standard and accomplishes no good whatever. If, in some of the states, basic science has controlled the wholesale issuance of cult licenses by independent or political boards, it should be retained for that purpose; but the medical men should be exempted. That basic science does not prevent cult or irregular practice is now apparent to all of you for several of the states have recently obtained appropriations and are engaged in prosecution of irregulars. So, too, are the other states not blessed with this legislation striving to carry out the American idea of the elimination of cult practice though they are not complicating the general system of licensure in their procedure.

Unquestionably there is at present on our statute books sufficient law defining violations of our practice acts, but enactment of law is not alone sufficient. There must be created and maintained a sentiment for the observance and enforcement of any law. I believe greater emphasis might be placed on efforts at education of the public to be put forth by medical educators, health officials and journals—education aimed to teach the public the proved truths of preventive medicine and the length of time and preparation necessary to be put in by an individual before he is competent to treat the sick. Perhaps in this way a sentiment for observance of the law may be created and cult or irregular practice controlled. We travel in circles in our efforts to curb irregular practice, forgetful that cultists and irregulars have always existed and we encumber our laws with useless remedies. Does not the security of medical practice today rest on the basis of scientific discovery susceptible of being translated into service, and shall we not best serve the public by giving to them under our seal of approval only the men of highest qualifications possessing the best medical knowledge of the time? It would be more consistent with the ideals of our profession were we vigorously to oppose legal recognition of any save the practitioner of the highest type. A truly American system of licensure is not yet a reality. It will be an accomplishment only when the credentials of a class A graduate licensed by examination in one state is given universal recognition on a parity and when the two functions peculiar to our laws, licensure and prosecution of irregulars are properly differentiated by administrative departments.

Medical Service in Kentucky

DR. J. S. CHAMBERS, Lexington, Ky.: Kentucky has one physician to every 879 people. In comparison with the United States as a whole, Kentucky falls a little short; there the ratio is 1:753. To consider only the total number of physicians in Kentucky is to achieve but a partial insight into her problem. Of greater significance is the distribution of these physicians. Lexington has one physician to every 281 people, while the ratio for Elliott County is 1:7,705. Between these two extremes vary the ratios of the different sections of the state.

The unequal distribution of physicians as between city and country has probably in no state gone to greater extremes than in Kentucky. More than one fourth of the counties of the state and one seventh of the people are without an even decent medical service. They may not have available even the services of a family physician. If by a medical service we means the services rendered by doctors, nurses, technicians, hospitals and laboratories, we may say that not even one half of the state is within easy reach of a medical service.

The state has now, considering total numbers, enough doctors, but they are not the right kind or in the right place. The older men are mostly general practitioners in rural counties. They are rapidly passing out of service. The young men coming into the profession and specializing are locating in the cities. The number of physicians in the state is decreasing at the rate of about fifty a year. The unreplaced loss is entirely of general practitioners and is entirely in the rural counties.

What, then, are the needs of our medical service? Above all, more general practitioners for our rural counties. By general practitioners I do not mean men who are unable to specialize—men with a minimum of training. I mean rather the specialist in doing well many of the commoner things. Our medical schools have scarcely recognized this need of our rural communities; the whole spirit of medical education has been such as to encourage narrow specialization for the exceptional student, leading necessarily to his location in a city. But, even though this were corrected, and highly trained men were provided for general practice, would they go to the rural counties? I believe the determining factor here to be the hospital—a place where the physician will find trained hands and ready tools to help him in his work. Physicians all now receive a major part of their training in hospitals. The hospital is as essential to modern medicine as the church is to religion. Yet today only fifty of Kentucky's hundred and twenty counties have hospitals. This suggests Kentucky's second basic need: first, more general practitioners; second, more general hospitals for the rural counties. How can a well rounded service be made reasonably available to every part of the state at a cost that can be borne largely by the local communities with possibly some assistance from the state or elsewhere?

The physician alone, without assistance and facilities, and with the training now being given in medicine, cannot supply a satisfactory medical service. We might, instead of adding to the large units in the large centers, consider the possibilities of the small center for the small community—decentralization. The public health service should be an integrated part of the medical service. The assistance and facilities of a medical service, rather than the doctor, should be subsidized.

DISCUSSION ON PAPERS OF DR. DONALDSON, MR. ULLMAN AND DRS. PLATTER AND CHAMBERS

DR. THOMAS J. CROWE, Dallas, Texas: The original purposes of the federation were to secure the adoption by its constituent state boards of adequate qualifications for license; to safeguard the public health; to bring about general adoption of uniform provisions for exchange of licensure between the states; to educate the public to appreciation of scientifically trained physicians, and to assure the citizens of the respective states that when they call a practitioner of any school they will get one who has proved his professional ability. The federation made its most fatal mistake in failing to concentrate from the date of its organization on the perfection and general adoption of a practical, nondiscriminative practice act and to education of the public to the life-saving value of adequately trained physicians. In the more than twenty years of its existence the federation has failed to secure the general adoption of a uniform system of reciprocal registration. In fact, since the advent of the basic science laws we seem to have drifted farther away from it than ever, as shown by Ohio's refusal to continue reciprocal relations with states that require all applicants for registry to take the basic science examination. It seems that New York discriminates between applicants for reciprocal registry who graduated from the same medical college at the same time and took their internships in the same hospital, because one of them was examined for license by the Michigan board and the other by the Ohio board. The Ohio examinee may be accepted after one year of legalization or of acceptable internship, in spite of the fact that his premedical credit consists of a high school diploma and two years of college work, whereas the Michigan candidate has a degree, B.A. Regardless of his college of graduation, premedical and medical credits, the applicant for reciprocal registry in California who graduated more than ten years ago must go to the trouble and expense of traveling perhaps 3,000 miles, pay a fee of $100, and submit to an oral examination. I must admit that I am very dumb; for I cannot figure out what particular good might accrue to either the public or the reputable profession by the enactment of such apparently useless requirements. But inconsistent with an attempt to secure uniform reciprocal registry as they may seem, these barriers against adequately qualified physicians, graduates from schools with membership in the Association of American Medical Colleges, seem to have been at least passively approved and supported, if not actually proposed, by men high in the councils of the federation, who two years ago secured the adoption by this organization of a resolution placing responsibility for the education and training of physicians in the hands of the medical college association, adding that, having implicit confidence in the colleges to control the education and training of medical students, the federation would cease to supervise their work and turn its attention to enforcement of the practice acts,

the purpose for which state boards were created. I am opposed to sectional barriers against reciprocal endorsement of reputable, scientifically trained physicians. When a young man has attained the entrance requirement of the Association of American Medical Colleges, graduated from a class A school, served a year of internship in a standard teaching hospital and successfully passed an examination for license before a reputable state board of medical examiners, he has done all that should reasonably be expected of him by any state. The mistakes of the federation suggest the early adoption of three lines of endeavor: first to secure if possible the general adoption of practical, uniform medical practice acts; second, education of the public to appreciation of scientific medicine; and, third, to secure the good will and active cooperation of the reputable medical profession, by removal of sectional barriers against reciprocal licensure of adequately qualified physicians regardless of the name or geographic location of the state from which they may apply.

DR. JOHN R. NEAL, Springfield, Ill.: In Illinois we have been opposed to an annual registration fee for physicians. We believe that the state licenses are for the protection of the public and that the primary reason for the license is not to protect the medical profession. This is true in the state supervision of other activities, such as banking and insurance. Even though physicians were taxed an annual registration fee, the proceeds could not be used directly for any purpose but would go to the state treasurer and then be reappropriated by legislative enactment to the department of registration and education. Therefore, we believe that annual registration is wrong in principle, for it places the medical profession in the position of paying for a procedure the purpose of which is to protect the public, and it tends to create more political and public administrative machinery, without bringing in corresponding benefits. Dr. Donaldson advocates an annual registration fee of only sufficient amount to pay for the actual expense of registration and publication, but not to cover the cost of enforcement. Even this method does not appeal to the physicians of my state. A list of accredited licensed physicians sent to us once a year does not serve as good a purpose as the classified medical directories now at our disposal, especially the one issued by the American Medical Association. If the purpose of such a state publication is for a physician to look over the list with the one idea of reporting unlicensed practitioners in his community, it seems to us altogether an unnecessary step for we believe that this is obviously a function of the state, and a sufficient number of inspectors, paid from the public fund, should be maintained. State medicine is not so foreign to this country as it once was. A bill asking for the adoption of compulsory health insurance has been introduced in the legislature of British Columbia. Massachusetts has already embarked on a state cancer program that involves the holding of clinics and the operation of hospitals, and the suggestion has been made that a similar program be adopted in that state in relation to rheumatism. The uneven burden of sickness is a question which is creating an increasing agitation. These are problems which overshadow the matter of irregular practitioners to both the profession and the public and about which licensure can do but little.

F. M. BRIST, St. Paul, Minn.: In respect to enforcing the medical laws, a good law is the first essential. The practice of healing must be defined if one is going to take a man before a jury and have the judge intelligently charge the jury with what the crime is. That must be stated in the law. Something must be there that can be pointed out to the defendant that he is doing. I subscribe to the motto in New York that the thing to do is not to try and regulate the quack or to elevate him by a board that requires a lesser course of study, but my idea is to exterminate him. I think the public is entitled to some protection. Our legislature made the mistake in 1927 of defining unprofessional and dishonorable conduct. Up to that time those words were not defined, and I think the medical board up to that time could have used its own good judgment as to what constituted unprofessional conduct. Today the definition is specifically set out and, of course, that definition is binding.

DR. ROSS V. PATTERSON, Philadelphia: I am in favor of the licensure of the well qualified graduate without examination. My real reason for advocating such a practice is that my experience shows that the recent graduate who is subjected to this test resents the inquisition. These are things that are brought back to the dean's office. The result is to inculcate in the recent man something of irritation and resentment against this state board and, in some cases, certain antagonism between the state boards and the medical schools. I believe that, if the recent graduate were received and welcomed into the medical profession by the men responsible for the granting of his license, it would inculcate in him a feeling of good will toward that board, and its purposes, that would lead to far better support than boards sometimes now receive. As a first step in that direction, I would suggest for consideration that each board start by recognizing the graduates of the schools of their own states and admit them to licensure without formal examinations but merely by an inquiry into their training. As a matter of fact, the recent graduate's life is an open book. Nothing is easier than to gain a line on not only his training but also his character. I have watched, as every dean does, the fortunes of graduates in the various state board examinations of my own school. Some 500 or 600 graduates were examined without failure. Isn't it evident that an unnecessary and an arduous burden is being imposed on state boards which in nowise furthers the purposes of a board?

DR. E. J. ENGBERG, St. Paul, Minn.: In 1927 when the basic science law and the registration law were passed we had a medical board that was broke. We had no funds, even to pay our secretary. We had licensed osteopaths and licensed chiropractors among us. Since the passing of this law with the registration fee, the money from which goes into the medical board funds, we have put on an effective enforcement program and now are spending about $6,000 a year for our legal expenses. We have had only a very few men added to the osteopaths and the chiropractors. Those who have been added have passed the basic sciences. We have had no new cults added. If we can do anything to correct the present operation of the basic science law so that it will be acceptable, I shall be glad to do anything I can. I will be glad to cooperate with any of the other basic science boards in their problems.

DR. CHARLES B. PINKHAM, Sacramento, Calif.: I think that the Minnesota board is deserving of our compliments for putting on as active a campaign as has been announced here today. It is pleasing to learn that a state board is financing itself and going to work actively in the prosecution of the illegal practitioner. We at California seem to be the dumping ground of the United States, not only the United States but all of Europe. For that reason we have to be very exacting in our requirements. Some years ago we had a law which allowed all licentiates of other states to come in without any requirement or examination. We were getting a very undesirable class of practitioners, men who had been detailing either for drug houses or book houses and men engaged in the stock houses. We have great difficulty with the foreign graduates. It is impossible, so far as Russia is concerned, to verify credentials. Therefore, we have adopted the policy of attempting to verify through the American consul, wherever it is possible, the credentials of the individual. Dr. Patterson's suggestion that the graduates of class A medical schools be admitted without further examination on the part of the state medical board, I do not think is a practical one. It appears as though it might be practical from the standpoint of the educator, but those in the administrative end know that it is absolutely impracticable. Once the ball started rolling, the same provision would apply to all classes of applicants.

(To be continued)

When Do We Weep?—To put it briefly, it is with the realization that the clouds have a silver lining, with the consciousness of a new hope stirring within us, with the realization that the depressing and cheerless situation has a redeeming feature, and that the elements which would depress our spirits are offset by those that would lift us, it is then that we weep. —Lund, F. H.: Emotions of Men, New York, McGraw-Hill Book Company, Inc., 1930.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Bill Introduced.—S. 131 proposes to require every chartered educational institution, empowered by law to confer academic or professional degrees, to file annually with the superintendent of public instruction a report of the number of students, the courses of study offered, the names and addresses of the teachers employed therein, the subjects taught by them, the degrees, if any, granted by said educational institution, the curriculums on the basis of which such degrees are granted, and any other information that may be required by the superintendent of public instruction.

State Medical Meeting at San Francisco, April 27-30.—The sixtieth annual session of the California Medical Association will be held in San Francisco, April 27-30, with headquarters at the Fairmont Hotel, and under the presidency of Dr. Lyell C. Kinney, San Diego. Following are the guest speakers: Drs. Vilray P. Blair, St. Louis, on "Correction of Losses and Deformities of the External Nose, Including Those Associated with Harelip"; William Lloyd Aycock, Boston, "Control of Poliomyelitis from the Point of View of Its Epidemiology"; Jean R. Oliver, Brooklyn, "Parenchymal and Vascular Disturbances of Kidney Function"; Ralph Milton Waters, Madison, Wis., "Circulatory Changes During Spinal Anesthesia," and Elexious T. Bell, Minneapolis, "Nephritis and Nephrosis." One general meeting will be devoted to medical economics. Surgical and medical clinics will be held Tuesday and Wednesday mornings at various hospitals. The annual golf tournament will be held Thursday afternoon, April 30, at the Lake Merced Golf and Country Club and the president's dinner dance, Tuesday evening, at the Fairmont. The woman's auxiliary will hold its annual meeting, April 28-29.

COLORADO

Dr. Macomber Appointed Editor. — Dr. Douglas W. Macomber, Denver, has been appointed scientific editor of *Colorado Medicine*, succeeding Dr. John Rosslyn Earp, who resigned to become director of public health of New Mexico. Dr. Macomber graduated from the University of Colorado School of Medicine in 1926.

Society News. — At the regular meeting of the Medical Society of the City and County of Denver, April 7, Lieut. Col. Alexander T. Cooper spoke on "Some Observations on the Results of Phrenico-Exeresis in Pulmonary Tuberculosis"; Major William W. McCaw, "Examination of the Gallbladder by the Dye-Oral Method," and Lieut. Cols. Earl H. Bruns and Joseph Casper conducted a clinic on thoracoplastic treatment of pulmonary tuberculosis. Prof. Francis de Groer, director of the pediatric department, University of Lemberg, Poland, addressed a joint meeting of this society, the Denver Sanatorium Association, the Colorado Tuberculosis Society, the Rocky Mountain Pediatric Society and the medical department of Colorado University at the medical school, March 24, on "General Hygiogenesis of Infectious Diseases." The society was addressed, March 17, by Drs. Nolie Mumey on "S. Weir Mitchell, the Physician and Scientist"; George W. Miel, "Jefferson Medical College Memories," and John W. Amesse, "William Beaumont, Army Surgeon and Pioneer Investigator."

DELAWARE

Health at Wilmington.—Telegraphic reports to the U. S. Department of Commerce from eighty-one cities with a total population of 36 million, for the week ended April 11, indicate that the highest mortality rate (22.5) appears for Wilmington, and the rate for the group of cities as a whole, 13.2. The mortality rate for Wilmington for the corresponding week last year was 20.1, and for the group of cities, 13.4. The annual rate for eighty-one cities was 13.9 for the fifteen weeks of 1931, as against a rate of 13.4 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

FLORIDA

Society News. — Dr. Joseph Colt Bloodgood, Baltimore, addressed the Hillsborough County Medical Society, in February, on progress in combating cancer. —— Dr. John M. Dodson, Chicago, addressed the Marion County Medical Society at Ocala, March 19, on health education.——Health units have been formed in Taylor and Leon counties with financial aid extended by the U. S. Public Health Service.

Bills Introduced.—S. 68, to amend the medical practice act, proposes that retired, honorably discharged, detached or active physicians and surgeons of the United States Army, Navy or Public Health Service may receive licenses to practice without an examination on the payment of $50. The proposed act, however, is not to apply to contract surgeons and medical reserve officers of the federal government or to any other person with a like status. S. 70 proposes a new dental practice act. S. 1 proposes to provide compensation to employees injured in industrial accidents. Employers are to be given the right to select physicians or surgeons to render medical treatment except that when the treatment required is not surgical the injured employee shall have the right to choose any mode of treatment lawfully practiced in Florida. S. 13 proposes a new act regulating the sale and distribution of narcotic drugs. S. 23 proposes that no tax to engage in any occupation or profession shall be levied against any natural person.

GEORGIA

Personal. — Dr. Fred H. Simonton, Macon, has been appointed commissioner of health for health district number 1, composed of Dade, Walker and Chattooga counties, and Dr. Thomas C. Neal, Anniston, Ala., commissioner for district number 2, composed of Catoosa, Whitfield, Murray and Gordon counties. The two districts are those designated by the federal government for drought relief work, the funds for which are to be administered by the U. S. Public Health Service through the state board of health.

Honor Crawford W. Long's Memory. — A plaque in honor of Dr. Crawford W. Long was unveiled, March 30, at the Davis-Fischer Sanatorium, Atlanta, at a ceremony rededicating this institution as the Crawford W. Long Memorial Hospital. Miss Emma Long and Mrs. Eugenia Long Harper, daughters of Dr. Long, assisted. Inside the hospital lobby, tablets were unveiled in tribute to Joseph Jacobs, lifelong friend of Dr. Long, and to Dr. Edward C. Davis, one of the founders of the institution. Dr. Lamartine G. Hardman, retiring governor of Georgia, and Drs. Frank K. Boland, Edgar G. Ballenger, Allen H. Bunce and Thomas C. Davison were among the speakers.

ILLINOIS

Bills Introduced.—S. 452, to amend the medical practice act, proposes that the board of medical examiners consist of five reputable physicians licensed to practice medicine and surgery in Illinois, no one of whom shall be an officer, trustee, instructor or stockholder in any medical college which confers on its graduates the degree of doctor of medicine. H. 557 proposes a new act regulating the sale or distribution of habit-forming drugs. H. 788 proposes to make it unlawful for any person to sell or otherwise distribute any food, drink, medicine or toilet preparation, intended for human use, or any antifreeze agent for motor vehicle radiators, containing wood alcohol, methanol or methyl alcohol. All sales must be made in containers labeled "Deadly Poison—Wood Alcohol." S. 471, to amend the dental practice act, proposes to prohibit corporations from practicing dentistry or dental surgery or from furnishing dental services or dentists for compensation. S. 472 proposes that in any suit for personal injuries the defendant may require the plaintiff to undergo a physical and roentgen-ray examination, to be conducted by two physicians designated by the court.

State Medical Meeting at East St. Louis, May 5-7.—The eighty-first annual meeting of the Illinois State Medical Society will be held at East St. Louis, May 5-7, under the presidency of Dr. William D. Chapman, Silvis. Included in the program will be papers by Drs. Andy Hall, Mount Vernon, on "The Challenge of Syphilis"; Richard L. Sutton, Kansas City, Mo., "The Long Trek"; Louis H. Bauer, Hempstead, N. Y., "Aviation Medicine, with Special Reference to the Special Examinations"; Irl C. Riggin, New York, "Heart Disease—Prevention and After-Care"; Ernest Sachs, St. Louis, "Diagnosis of Spinal Cord Lesions"; Walter M. Simpson, Dayton, Ohio, "Recent Developments in Tularemia"; Edward H. Skinner, Kansas City, Mo., "The Roentgen Examination";

Willis D. Gatch, Indianapolis, "Our Present Conception of the Pathological Processes Caused by Intestinal Obstruction and Some of Its Clinical Applications"; Vilray P. Blair, St. Louis, "Surgery of the Structures Related to the Inner Canthus of the Eye"; Arthur J. Bedell, Albany, N. Y., "Choked Disk and Optic Neuritis"; Leroy Sante, St. Louis, "Factors Concerned in Radiation Therapy of Malignant Disease"; Edwin C. Ernst, St. Louis, "Present Status of Penetrating X-Rays and Radium in Deep-Seated Cancer and Other Diseases"; Arthur W. Erskine, Cedar Rapids, Iowa, "X-Ray Therapy in Skin Diseases," to be discussed by Dr. Martin F. Engman, St. Louis. The oration in surgery will be given by Dr. Evarts A. Graham, St. Louis, on "Lowering the Mortality in Operations on the Biliary Tract," and the oration in medicine by Dr. William W. Duke, Kansas City, "Allergy as Related to the General Practice of Medicine." Entertainment is being arranged for physicians and their wives.

IOWA

Bill Introduced.—H. 578 proposes a new act providing for the sexual sterilization of certain socially inadequate inmates of state institutions.

Bills Enacted.—The following bills have become laws: S. 67, requiring all practitioners of the healing art to report to the sheriff of the county within twelve hours after treating any cases in which there have been injuries due to violence; and H. 129, amending the law requiring physicians to report venereal diseases to local boards of health, by requiring physicians to make such reports to the state department of health, except when the patients are in the jurisdiction of full time or county health officers, when such reports shall be sent to such officers.

State Medical Meeting at Des Moines, May 13-15.—The eightieth annual session of the Iowa State Medical Society will be held at Des Moines, May 13-15, with headquarters at the Hotel Fort Des Moines, and under the presidency of Dr. William A. Rohlf, Waverly. Guests on the program will be Drs. Campbell P. Howard, professor of medicine, McGill University Faculty of Medicine, Montreal, who will give the address in medicine; John F. Erdmann, professor of surgery, New York Post-Graduate Medical School, the address in surgery on "Postoperative Abdominal Fistulae"; George W. Mackenzie, Philadelphia, "Indications for the Simple Mastoid Operation"; E. Starr Judd, Rochester, Minn., President-Elect, American Medical Association, an address and a surgical clinic; Walter C. Alvarez, Rochester, Minn., "The Art of Medicine." Motion pictures with sound will be shown on "Subtotal Abdominal Hysterectomy for Uterine Fibrosis" and "Experimental Gastro-Enterostomy." Many clinics and papers have been prepared by Iowa physicians. Entertainment will include a smoker, Wednesday, and the annual banquet, Thursday. The second annual meeting of the woman's auxiliary will be held at the same time, and the thirty-fourth annual meeting of the State Society of Iowa Medical Women will be held at the Hotel Chamberlain, May 12.

KANSAS

State Medical Meeting at Manhattan, May 5-7.—The seventy-third annual meeting of the Kansas Medical Society will be held at Manhattan, May 5-7, at the Wareham Hotel and under the presidency of Dr. Edgar C. Duncan, Fredonia. Guest speakers will be Drs. Edwin W. Ryerson, Chicago, on "Operative Treatment of Infantile Paralysis" and "Value of Unusually Early Operative Treatment in Congenital Hip Dislocation with Description of the Method"; Arthur J. Cramp, director, Bureau of Investigation, American Medical Association, "The Bureau of Investigation and Its Work"; Harry S. Crossen, St. Louis, "Practical Problems in the Treatment of Carcinoma of Cervix Uteri"; E. Starr Judd, Rochester, Minn., President-Elect, American Medical Association, "A Consideration of the Clinical Aspects of Surgical Lesions of the Upper Abdomen"; Olin West, Secretary, American Medical Association, "Some Important Problems," and Jennings C. Litzenberg, Minneapolis, "Preventable Invalidism Following Childbirth." In addition to these speakers, papers will be presented by many Kansas physicians. A motion picture with sound on "Subtotal Abdominal Hysterectomy for Uterine Fibroids" will also be presented. Dr. Cramp will address a public meeting, Tuesday evening, on "Patent Medicines and the Public." An all-day golf tournament will be held at the Country Club, Monday; dinner will be served in the evening, when prizes will be awarded. There will be a stag smoker Wednesday.

KENTUCKY

Personal—Dr. Joseph E. Wells, Cynthiana, completed fifty years in the practice of medicine, February 28.——Dr. Russell E. Teague, Bardstown, has been appointed director of the Wayne County health department at Monticello.——At the organization meeting of the Greenup County Board of Health, February 24, Dr. Alonzo Huffman, Russell, was elected health officer.

Society News.—Dr. John F. Erdmann and John A. Killian, Ph.D., New York, addressed the Jefferson County Medical Society, March 11, on "Tumors of the Colon" and "The Practical Value of Biochemistry in Medical Problems," respectively. Dr. Jacob P. Greenhill, Chicago, addressed the society, April 6, on "Forceps Delivery and Episiotomy," illustrated.——Dr. John A. Snowden, Jr., addressed the Clark County Medical Society, Winchester, March 20, on tularemia.——Drs. John H. Blackburn, Bowling Green, discussed jaundice before the Christian County Medical Society, Hopkinsville, March 17; Drs. Harry D. Abell, Paducah, and Herschel C. Ezell, Nashville, presented papers on diagnosis of diseases of the eye and infantile glaucoma, respectively, February 17, when the society was entertained at dinner by Dr. Frank M. Stites.——Dr. Baxter H. Sigler, Owensboro, addressed the Daviess County Medical Society, March 10, on pernicious anemia, and Dr. Edward Barr, on secondary anemias.——Dr. J. H. Jones, an epidemiologist of the U. S. Public Health Service, in Kentucky to aid in controlling the widespread epidemic of scarlet fever, addressed the Muhlenberg County Medical Society on that disease, in March.——Dr. Orville R. Miller, Louisville, addressed the Harlan County Medical Society in February on "Low Back Pains."——Drs. Robert M. Mason, Murray, and William J. Shelton, Mayfield, were the speakers at the February meeting of the Southwest Kentucky Medical Society, Benton, on appendicitis and influenza, respectively.——Drs. Lucius E. Smith and Paul A. Turner, Louisville, addressed the McCracken County Medical Society in April on "Childhood Tuberculosis."

MARYLAND

Society News.—Dr. John Rathbone Oliver addressed the Johns Hopkins Medical Historical Club, March 23, on "Medical Material from Matheo Aleman's 'The Rogue,' translated by James Mabbe," and Dr. Theodore Diller, Pittsburgh, "Human Credulity as Illustrated by Belief in Witchcraft."——Dr. Gerald H. Jordan, among others, addressed the Baltimore City Medical Society, March 6, on "Trichiniasis Involving the Ocular Muscles."

Dr. Freudenberg Gives Dohme Lectures.—Karl Freudenberg, Ph.D., professor of organic chemistry and director of the Chemical Institute, University of Heidelberg, delivered the Charles E. Dohme memorial lectures at Johns Hopkins School of Hygiene and Public Health, April 16-18, on "Insulin," "Optical Activity and Configuration of Oxy- and Amino-Acids," and "Recent Researches on Cellulose and Starch." The purpose of the lectureship is to promote the development of a more intimate relationship between chemistry, pharmacy and medicine.

Bills Enacted.—The following bills have become laws: H. 149, amending the pharmacy practice act by providing that nothing in the act "shall be so construed as to make unlawful the sale or display by general merchants, of any proprietary or patent medicine; or the sale by such general merchants of commonly used household or domestic remedies in original unopened packages, provided that such household or domestic remedies are clearly labeled with the ordinary name of the article contained therein and the name of the manufacturer or distributors thereof"; H. 182, providing that local boards of health shall each appoint in May, 1931, and quadrennially thereafter, a health officer and that no such appointment, however, shall be made without the advice and consent of the state board of health; H. 183, providing that the state board of health shall divide the state outside of Baltimore City into twenty-three sanitary districts and shall appoint deputy health officers for each sanitary district; and H. 27, prohibiting the sale of methanol wood alcohol, whether sold for antifreeze or any other commercial purposes unless it is sold in containers bearing a warning label, stating that it is a violent poison, cannot be made nonpoisonous and will cause blindness or death if taken internally. Methanol, also, must be colored so that it will not be confused with potable alcohol and must contain a substance that will cause vomiting if it is imbibed.

MASSACHUSETTS

License Revoked.—The license of Dr. Harry N. Carr, Southwick, was revoked by the state board of registration in medicine at a meeting, February 13, following a hearing on the charge of gross misconduct in the practice of his profession.

Society News.—Dr. Erwin C. Miller, Worcester, addressed the Worcester District Medical Society, March 11, on "Clinical Problems Concerning Basal Metabolism," and Dr. Francis M. Rackemann, Boston, "The Nature of Asthma and Hay-Fever —Their Diagnosis and Treatment."——At the annual meeting of the New England Dermatological Society, April 8, Dr. Arthur M. Greenwood, Boston, was elected president, and Dr. William P. Boardman, Boston, secretary.

Dr. Meyer Gives Cutter Lectures.—Karl F. Meyer, Ph.D., professor of bacteriology and director of the Hooper Foundation for Medical Research, University of California Medical School, San Francisco, will deliver the Cutter Lectures on Preventive Medicine, April 27-28, in Boston. The first lecture, April 27, will be given at the Harvard University Medical School on "Botulism and Its Control"; the second, April 28, at the medical school on "A Safe Milk" (motion picture), and the third, April 28, at the Peter Bent Brigham Hospital, on "Undulant Fever in the West."

Bills Introduced.—H. 1472 proposes that an insane person, an idiot or a feebleminded person under commitment to an institution for the feebleminded, to the custody or supervision of the department of mental diseases or to an institution for mental defectives, shall be incapable of contracting marriage. S. 444 proposes to create a board of registration of hair dressers, cosmetologists and electrologists and to regulate the practice of such persons. The license proposed to be granted such practitioners would, among other things, permit them to remove superfluous hair from the body by the use of electricity.

MICHIGAN

Detroit Wins Health Award.—Detroit was awarded first place among cities with population of more than 500,000 in the annual contest in health conservation conducted by the U. S. Chamber of Commerce in cooperation with the American Child Health Association. One hundred and forty-nine cities submitted reports covering water supply, sewage disposal, protection of milk supply, medical conferences and clinics, loss of life from preventable diseases and support of local health work by official and unofficial agencies. Winning cities in other classes were: Newark, N. J., cities from 250,000 to 500,000; New Haven, Conn., cities from 100,000 to 250,000; Racine, Wis., cities from 50,000 to 100,000; Alhambra, Calif., cities from 20,000 to 50,000; Chestertown, Md., cities under 20,000. The awards will be made at the annual meeting of the Chamber of Commerce, Atlantic City, April 28-May 1.

Bills Introduced.—H. 472, to amend the law providing for the sexual sterilization of certain socially inadequate persons, proposes to define the words "mentally defective person" or "defective person," as used in the act, to include all feebleminded, insane, idiot, imbecile, morally degenerate, sexually perverted and epileptic persons, except persons afflicted with traumatic epilepsy. S. 184, to amend the osteopathic practice act, proposes to designate osteopathy as "the osteopathic school of medicine." A license to practice osteopathy, if this bill is enacted, will entitle the holder to practice "osteopathic medicine and surgery" in all its branches, as taught and prescribed in recognized colleges of osteopathy. The findings of the osteopathic board, however, as to the scope and extent of osteopathy, are to be prima facie evidence thereof, and accepted as such by all the courts. Osteopaths are to have the same rights as physicians of "other schools of medicine" with respect to the treatment of patients and the holding of positions in public institutions, and reports made by osteopaths must be accepted by the officers of the several departments to which they are made. Applicants for licenses by examination, exclusive of those who may be already enrolled in osteopathic colleges when the bill becomes effective, must have sixty hours of college work in addition to their osteopathic training, but the law is silent as to whether this college work shall be done before, during or after the study of osteopathy. Applicants are hereafter to be examined in certain subjects not now required by law, among them major and minor surgery and pharmacotherapeutics. Present practitioners of osteopathy are to be allowed to register under the proposed act and receive without examination the unlimited license authorized by it, without being required to show any evidence of qualifications beyond registration under the present osteopathic practice act; they are not required to show any evidence of any knowledge or training in major or minor surgery or pharmacotherapeutics.

MINNESOTA

Bills Introduced.—S. 1323, to amend the medical practice act, proposes that the board of medical examiners may reinstate revoked licenses to practice medicine. H. 1483 proposes to abolish the state board of hairdressers and beauty culture examiners and to vest its powers and duties in the state board of health.

Society News.—Dr. William F. Braasch, Rochester, spoke on "Intravenous Urography" before the Minnesota Academy of Medicine, April 8, and Dr. Horace Newhart, Minneapolis, presented a thesis on "Recent Advances in Deafness Prevention." ——Dr. Mynie G. Peterman, Milwaukee, addressed the Douglas County Medical Society, March 4, on "Convulsions in Children." ——Dr. Frederick C. Bowman recently celebrated the fiftieth anniversary of his medical practice in Duluth.——Dr. James F. Corbett, Minneapolis, was recently elected president of the Minneapolis Surgical Society.

NEBRASKA

Graduate Course in Surgery.—A graduate course under the auspices of the department of surgery, University of Nebraska College of Medicine, will be offered, May 4-11, preceding the annual meeting of the state medical society. Practical work in the wards and clinics will comprise the principal part of the course, with the major interest in general surgery, including gynecology; orthopedics, including fractures; urologic diagnosis and treatment, ophthalmology, and otorhinolaryngology. Laboratories and the library will be available at all times. The fee is $10 and the number accepted will be limited to thirty.

Society News.—A symposium on pneumonia occupied the meeting of the Omaha-Douglas County Medical Society, April 14. Physicians who spoke were Drs. Benjamin Carl Russum, Howard B. Hamilton, Warren Thompson, James F. Kelly and Herbert H. Davis. Drs. John F. Allen, Omaha, and John W. Martin, Baltimore, addressed the society, March 24, on "What Is Early Tuberculosis?" and "Traumatic Surgery and Its Relation to Industry," respectively.——The Omaha Obstetrical Society was organized, March 4, with Dr. Frank P. Murphy as secretary.——Dr. Isaac A. Abt, Chicago, delivered the first address under an annual lectureship established by Phi Rho Sigma of the University of Nebraska, April 1, on "Progress in Pediatrics."

NEW YORK

Society News.—Dr. Frank J. Noonan, among others, addressed the Rensselaer County Medical Society, Troy, March 10, on "Acute Cholecystitis and Appendectomy."——Drs. Silas D. Molyneaux and Ben L. Matthews, Binghamton, addressed the Tioga County Medical Society, Owego, March 3, on "Diagnosis and Treatment of Conditions in the Abdomen" and "Jaundice," respectively.——Dr. Howard L. Prince, Rochester, addressed the Tompkins County Medical Society, Ithaca, February 17, on "Vascular Diseases of the Extremities."——The annual conference of health officers and public health nurses will be held, June 29-July 1, at Saratoga Springs, with headquarters at the Grand Union Hotel.——Dr. Samuel W. Mills, Middletown, addressed the Medical Society of the County of Orange, April 14, on "Technic and Result of Spinal Anesthesia."——At the meeting, April 14, of the Medical Society of the County of Albany, Dr. Philip L. Forster spoke on "Recurrent Dislocation of the Shoulder" and Drs. Harold A. Peck and Arthur W. Wright gave a report on the Aschheim-Zondek test for pregnancy. Dr. Felix d'Herelle, New Haven, Conn., addressed the society, March 30, on "Bacteriophage and Recovery from Infectious Diseases."——Drs. Allen W. Holmes, Watkins Glen, and Donald Guthrie, Sayre, discussed "Differential Diagnosis Between Acute Coronary Occlusion and the Acute Abdomen" before the Bradford County Medical Society, Sayre, March 31.——Dr. Iago Galdston, New York, spoke on "The Rôle of the Family Doctor and the County Society in the Health Examination Program," before the Medical Society of Monroe County, Rochester, March 13.

New York City

Dr. Cushing Gives Welch Lecture.—Dr. Harvey Cushing, Moseley professor of surgery, Harvard University Medical School, Boston, will deliver the William Henry Welch Lecture at Mount Sinai Hospital, April 30, on "The Posterior Pituitary Hormone and the Parasympathetic Nervous System."

Society News.—Drs. Russell L. Cecil and Richard Kovacs addressed the Medical Society of the New York Polyclinic Medical School and Hospital, April 6, on "Pneumonia and Its Treatment" and "Physical Measures for Painful Shoulder,"

respectively.——Dr. Josephine B. Neal delivered the nineteenth afternoon lecture sponsored by the New York Academy of Medicine, April 10, on early diagnosis and treatment of poliomyelitis. Dr. Walter C. Alvarez, Rochester, Minn., gave the twentieth and last of the series at the New York Academy of Medicine, April 17, on "Problems of Gastro-Enterology Today."——Dr. Julius Jarcho, among others, addressed the Medical Association of the Greater City of New York, April 20, on the value of roentgenologic diagnosis in gynecology and obstetrics. —— Dr. Frederick C. Holden addressed the Medical Society of the County of Queens, April 17, in Forest Hills, L. I., on "Management of Pelvic Infections." Dr. Holden spoke on the same subject, April 24, before the International Spanish-Speaking Association of Physicians, Dentists and Pharmacists.——Dr. Leo Mayer addressed the Harlem Medical Association, March 4, on orthopedic surgery.——Dr. L. Rosenthal was recently elected president of the Russian Medical Society of New York.

PENNSYLVANIA

Bills Introduced.—S. 655 proposes to create a board of drugless therapy education, examination and licensure, to consist of two chiropractors, two naturopaths and one neuropath, which may license persons to practice drugless therapy as taught and practiced in all its branches in legally chartered or incorporated schools and colleges teaching the various forms of drugless therapy. H. 1511 proposes to make the hopeless insanity of one spouse a ground for divorce.

Society News. — Dr. John A. O'Donnell, among others, addressed the Pittsburgh Pediatric Society, April 10, on treatment of diabetes in children.——Dr. Herman H. Van Horn spoke on diseases of the blood before the Dauphin County Medical Society, Harrisburg, March 3.——Dr. Clarence M. Hincks, New York, discussed "Newer Developments in Mental Hygiene" at a meeting of the Pennsylvania Mental Hygiene Committee and the Public Charities Association held in Pittsburgh, March 26, in the interest of a state psychiatric hospital for Pittsburgh.——Dr. Earl Glotfelty read a paper on purpura hemorrhagica before the Franklin County Society, Waynesboro, March 17. —— Drs. Elvin J. Bateman and Sidney A. Chalfant addressed the Allegheny County Medical Society at its annual meeting, April 14, Pittsburgh, on "The Rôle of Ureteral Disease in Lower Abdominal Pain in the Female" and "Treatment of Acute Salpingitis," respectively; Dr. Harold O. Jones, Chicago, presented two talking motion pictures on gynecologic conditions. Members of the society were entertained at the Montefiore Hospital at dinner, April 8, when Dr. John A. Kolmer, Philadelphia, gave an address on "The Present Status of Vaccine and Nonspecific Foreign Protein Therapy."

Philadelphia

Temple to Inaugurate X-Ray Department. — An x-ray department of twenty-eight rooms will be opened shortly at Temple University School of Medicine and Temple University Hospital, under the direction of Dr. William Edward Chamberlain, formerly professor of medicine, Stanford University School of Medicine, San Francisco. Twenty-two rooms are in the hospital and six in the school of medicine. Special rooms are provided for various types of roentgenograms, including one for surgical radiography, with shock-proof apparatus that permits anesthetics to be used in the same room with the x-ray machine. A feature of the dark room for developing films is a mechanical conveyor that removes films into a lighted drying room within fifteen minutes after exposure. The therapy rooms have a protective flooring of lead rubber tile to prevent penetration of the rays. In addition there is a machine shop for research on x-ray machinery.

Society News.—A symposium on mental hygiene was conducted at a joint meeting of the Philadelphia County Medical Society and the Philadelphia Psychiatric Society, April 22, the participants being Drs. James Allen Jackson, Danville; William C. Sandy, Harrisburg; Frederick H. Allen and Clarence A. Patten, Philadelphia.——Dr. Jacob W. Cutler delivered the postgraduate seminar under the auspices of the Philadelphia County Medical Society, April 17, on "Practical Application of the Blood Sedimentation Test in General Medicine."—— Dr. Horatio C. Wood, Jr., among others, addressed the Philadelphia Clinical Association, April 14, on opium and opium addiction.——Drs. Douglas P. Murphy and Edward S. Thorpe, Jr., among others, presented a paper before the Philadelphia Pediatric Society, April 14, on "Variation in Breathing Rhythm of Normal New-Born Infants, with Demonstration of an Apparatus for Measuring Infant Breathing."

RHODE ISLAND

Society News.—Dr. Ira H. Noyes, Providence, addressed the Washington County Medical Society, Westerly, April 8, on "Difficult Labor Associated with Prolonged First Stage." ——Dr. Frank T. Fulton spoke on arterial hypertension and Dr. James A. McCann discussed cases illustrating the need of urologic examination in obscure pelvic symptomatology, before the Providence Medical Association, April 6.

TEXAS

Personal.—Dr. Isaac A. Withers, Fort Worth, was recently appointed to the State Board of Medical Examiners, succeeding Dr. Leopold H. Reeves, Fort Worth.——Dr. John W. Balke, Rosenberg, has been appointed health officer of Fort Bend County, to succeed Dr. James C. Johnson, Richmond, resigned.

State Medical Meeting at Beaumont, May 5-7.—The sixty-fifth annual session of the State Medical Association of Texas will be held, May 5-7, at Beaumont, with headquarters at the Edson Hotel and under the presidency of Dr. John W. Burns, Cuero. In addition to an extensive program by Texas physicians, addresses will be given by guest speakers, including Drs. Clifford A. Barborka and William C. MacCarty, both of Rochester, Minn., on "Present Status of the Ketogenic Diet and Its Use" and "Classification, Diagnosis and Prognosis of Neoplasms," respectively; Calvin C. Applewhite, Jackson, Miss., "Fundamental Principles in Rural Health Work"; Frank N. Glenn, Boston, "Modern Conception of Tumors of the Brain"; H. Wellington Yates, Detroit, "Milk Therapy in Pelvic Infections"; Joseph C. Bloodgood, Baltimore, "Borderline Tumors"; Tom B. Throckmorton, Des Moines, Iowa, "Clinical Neurology and the General Practitioner"; John R. Caulk, St. Louis, "Vesical Neck Obstruction," and James Q. Graves, Monroe, La., "Intestinal Obstruction." Dr. MacCarty will address the general meeting at which new officers are inducted. Seven motion pictures, including the sound film on cesarean section made by Dr. Joseph B. DeLee, Chicago, and the Canti cancer film, will be shown. The Jefferson County Medical Society will entertain the association at dinner, Wednesday evening, after which the president's reception and ball will be given at the Edson Hotel. Competitions in golf for prizes offered by Beaumont hotels will be held during the week. The woman's auxiliary of the association will meet at the same time.

WISCONSIN

Bills Introduced.—S. 348, to amend the optometry practice act, proposes to eliminate that section which exempts from the provisions of the act "the sale of spectacles only at an established business without attempting to test the eyes." A. 797, to amend the chiropractic practice act, proposes to reduce the annual renewal fee for licenses to practice chiropractic to $3.

School of Medicine Adopts New Policies.—Three new policies adopted at Marquette University School of Medicine were announced in March, as follows: the subject system will replace the class system, orientation conferences for freshmen and sophomores are introduced, and a larger provision has been made for laboratory preparation in the main clinical subjects. The subject system, used generally abroad and in a few schools of the United States, takes account of the mental differences between the two extremes of a class. The orientation conferences include definition of a subject, discussion of the principal conditions under the subject, stress on the relationship between the subject and the basic sciences, and special applications of the basic sciences to the subject. Under the third policy adopted, the time formerly allotted to the surgical laboratories is now divided between them and the medical laboratories, thus providing for laboratory preparation in the two main clinical subjects, medicine and surgery.

Society News. — Dr. Francis de Groer, director of the pediatric department, University of Lwow (Lemberg), Poland, will deliver two lectures before the University of Wisconsin Medical Society, April 27, on "Prognosis and Diagnosis of Tuberculosis in Childhood" and "Reactivity of the Skin in Infancy and Childhood."——Dr. Claude F. Dixon, Rochester, Minn., among others, addressed the Medical Society of Milwaukee County, April 10. —— Drs. Mynie G. Peterman and Simpson M. Markson, Milwaukee, addressed the Racine County Medical Society, Racine, March 19, on the present status of vitamins and eczema in children, respectively.——Dr. Phillips F. Greene, Madison, spoke on "Helps to Early Diagnosis of Cancer" before the Green Lake-Waushara-Adams Counties Medical Society, Berlin, March 13.—Dr. Edward H. Ochsner, Chicago, discussed state medicine at the meeting of the Rock

County Medical Society, Beloit, March 24.——Dr. John L. Yates, Milwaukee, lectured on gastric and duodenal ulcers before the Dodge County Medical Society, Beaver Dam, March 26.——Drs. Peter Bassoe, Chicago, and Peter Bell, Winnebago, addressed a joint meeting of the medical societies of Menominee County (Mich.), Marinette and Florence counties, at Menominee (Mich.), March 26, on "Relation of the Endocrine to the Nervous System" and "Examination of the Insane," respectively.

GENERAL

Society News. — At the annual meeting of the American Association of Anatomists in Chicago, April 18, Dr. Herbert M. Evans, Berkeley, Calif., was elected president, and Dr. George W. Corner, Rochester, N. Y., secretary. The next annual session will be held at the College of Physicians and Surgeons, New York, March 24-26, 1932.——The next annual session of the American Association of Pathologists and Bacteriologists will be held, March 24-25, 1932; the tentative place of meeting is Philadelphia.

Quarterly Journal on Prevention of Blindness. — The *Sight-Saving Review* is a new journal issued for the first time in March by the National Society for the Prevention of Blindness. The magazine, a quarterly, is planned to serve both popular and technical groups, including social workers, ophthalmologists, illuminating engineers, educators and others interested in the sociological phase of saving sight. The editorial board includes Drs. Edward V. L. Brown, Chicago; William H. Wilmer, Baltimore; Edward Jackson, Denver, and Thomas D. Wood, New York. Lewis H. Carris, managing director of the society, is editor. The first issue contains articles on glaucoma, lighting, conservation of vision in schools, the status of blindness prevention work in the United States, and an appreciation of the late Ernst Fuchs, Viennese ophthalmologist.

Meeting of Health Authorities.—The annual Conference of State and Territorial Health Officers with the U. S. Public Health Service and that of the State and Provincial Health Authorities of North America will be held at the Willard Hotel, Washington, D. C., April 27-30. Surg. Gen. Hugh S. Cumming will give the opening address on "Current National and International Public Health Problems." A paper on "The White House Conference on Child Health and Protection Influence upon Local Public Health Administration" will be presented by Dr. Ray Lyman Wilbur; "Epidemiology and Clinical Recognition of a Disease of the Rocky Mountain Spotted Fever Type in the Eastern Section of the United States," Dr. Adolph S. Rumreich; "Canadian Governmental Agencies for Public Health Administration," Dr. William J. Bell, deputy minister of health, Province of Ontario; "New Alinements in the Administration of the American Public Health Association," Dr. Kendall Emerson, New York, and "Syphilis as a Public Health—Public Welfare Problem," Drs. William F. Snow, New York, Thomas Parran, Jr., Albany, N. Y., and Taliaferro Clark, Washington, D. C.

Bequests and Donations.—The following bequests and donations have recently been announced:

Amboy Public Hospital, Amboy, Ill., $5,000 from the estate of James Pankhurst.

Pennock Hospital, Hastings, Mich., $6,300 toward the endowment fund by the will of Sarah J. Lunn.

Homeopathic Hospital and Chester County Hospital, West Chester, Pa., about $5,000 each by the will of the late Rachel Townsend.

Homeopathic Hospital, West Chester, Pa., $4,000 by the will of Rachel S. Evans.

For founding a hospital in Tyrone, Pa., $100,000 by the will of Mrs. Adda M. Gray.

Village of Patchogue, N. Y., $300,000 to erect and equip a hospital by the will of Nettie Roe.

Yale University, $577,732.16, "to aid worthy students to gain an education in the academic department," by the will of the late Dr. William Whitney Hawkes, New Haven.

Kensington Hospital for Women, Philadelphia, $10,000 by the will of Thomas Develon, Jr.

Home for Incurables, Baltimore, and Hospital for Consumptives of Maryland (Eudowood Sanatorium), Towson, a trust fund of $1,000,000 through a gift of Mr. Frederick Bauernschmidt of Baltimore. A building will be erected at each institution as a memorial to Mr. and Mrs. Bauernschmidt.

St. Luke's and Children's Homeopathic hospitals, each $40,000, and Babies Hospital, $10,000, all of Philadelphia, by the will of Mr. Edward Francis Henson.

Presbyterian Hospital, Philadelphia, $20,000 in trust, the income to be used in the maintenance of the institution, by the will of Col. William John Elliott.

Chester County Hospital, West Chester, Pa., $6,000 to be used for the endowment of a room in memory of his late wife and son, by the will of Thomas W. Marshall.

Southampton Hospital, Southampton, N. Y., $5,000 by the will of the late Henry Blake.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 4, 1931

Graduate Education in London

The Fellowship of Medicine and Post-Graduate Medical Association, with which some fifty London general and special hospitals are connected, exists for the arrangement of graduate instruction for physicians of all nationalities. The medical year begins in October and finishes at the end of July. August and September are vacation months and the work obtainable is necessarily somewhat curtailed. Overseas graduates are advised, if possible, to arrive in England in August or September, so that they may become acquainted with London and plan their course of study well before the medical year begins. The following facilities are offered by the fellowship: 1. A general course, consisting of attendance at the clinical practice of the associated London hospitals. This course continues throughout the year and may be begun at any time, the fees ranging from $10 for one week to $105 for one year. 2. Special courses. A year's program is arranged in advance in twenty different specialties, which include such subjects as cardiology, psychiatry, orthopedics, gastro-enterology, tropical medicine, venereal diseases and proctology, to mention only the more out-of-the-way ones.

Thanks to the Fellowship of Medicine and Post-Graduate Association, graduate education in London is highly organized. American graduates who desire to study any branch of medicine should first visit the headquarters of the fellowship, which are in the house of the Royal Society of Medicine, 1 Wimpole Street, W. 1. There full information can be obtained as to all teaching facilities for graduates—clinics, lectures, demonstration courses. The fellowship publishes the *Post-Graduate Medical Journal,* containing not only lectures but also a section on postgraduate news which gives particulars as to forthcoming lectures and courses. It arranges intensive courses in general and special branches of medicine and surgery at intervals during the year, as well as courses in special subjects: diseases of children, ophthalmology, laryngology, dermatology, diseases of the lungs, heart and nervous system, gynecology, proctology, urinary surgery, tropical diseases and psychologic medicine.

The following are some of the coming events for April: A course in gastro-enterology at the Prince of Wales General Hospital from April 3 to 18. Instruction will be given from 10:30 a. m. to 5:30 p. m.; fee, $20. An all day course in diseases of the chest at the Brompton Hospital, April 20 to 25; fee, $15. A comprehensive course in psychologic medicine at the Maudsley Hospital, April 21 to May 30, consisting of lectures on psychoneuroses, crime and insanity, clinical laboratory methods, demonstrations on clinical psychiatry, clinical neurology and clinical laboratory methods; fee, $21. An intensive course in ear, nose and throat diseases at Central London Throat, Nose and Ear Hospital, April 27 to May 23. The course consists of a clinical course, a peroral class, a pathology class and an operative surgery class. For the last three the numbers admitted are strictly limited; fees, $26, $31, $26 and $37, respectively. A morning course in diseases of children at the Hospital for Sick Children; fee, $26. An afternoon course at the Infants Hospital, April 27 to May 9, of special interest to those engaged at infant welfare centers; fee, $15. In May the fellowship will resume its weekly free clinical demonstrations. In June a course of four demonstrations will be given on antenatal diagnosis and treatment at the Royal Free Hospital; fee, $5. Three free lectures on earache, nasal obstruction and otalgia will be given, April 10, 17 and 24, respectively, at the Central London Throat, Nose and Ear Hospital. A course in methods of examination and diagnosis will be held six days in

April; fee, $5. The following lectures at the Hampstead General Hospital will be given in April and are free: Treatment of minor skin disorders, common causes of sterility, treatment of cancer of the upper air passages and esophagus, treatment of gastric ulcer. Two series of twelve lectures each on psychologic types and mechanisms at the Tavistock Clinic. Fee for either, $8; for both, $10.

These are only some examples of the teaching in the shape of formal lectures or demonstrations available in the course of a single month. There is in addition an immense amount of organized teaching going on in the numerous hospitals of this vast metropolis. There are about a hundred hospitals, general and special, of which twelve are medical schools for undergraduates. The latter are too occupied with undergraduate teaching to make provision for graduates. But there are two general hospitals entirely devoted to graduate teaching ("postgraduate colleges"). As previously reported, a central graduate medical school is being established in London by means of a subsidy from the government. This, which is not yet working, will probably be much the most important graduate school, where all the leading teachers of the day can be heard.

Unlike the great general hospitals of London, which are all medical schools devoted to undergraduate teaching, the special hospitals are attended mainly by graduate students and there all the men of international reputation can be followed by American visitors. There are so many hospitals that it has been possible to select only the most important one in each specialty. This one should be attended by those interested in the particular specialty, wherever else they may go. It is not in the least suggested that the teaching elsewhere is not first class. The general level is high, and in some cases there may not be much to choose between the hospitals mentioned and those unmentioned (of which full particulars can easily be obtained). But in the case of such hospitals as the National (nervous diseases) or Moorfields (eyes) the importance is unequal.

REGULAR MEDICAL SCHOOLS

As stated previously, the regular medical schools are too much occupied with undergraduate to make provision for graduate teaching; but, with or without an introduction, American visitors could occasionally attend many of the clinics. One of the medical schools is an exception to the general rule of not inviting any graduate attendance. King's College Hospital is linked up with the fellowship and its various clinics are duly announced in the program. Also, Sir Thomas Horder invites graduates to his round in the wards at St. Bartholomew's Hospital on Thursdays and Dr. E. P. Poulton (editor of "Taylor's Medicine") to his staff round on medical cases of the first Thursday of the month.

THE WEST LONDON POSTGRADUATE COLLEGE

The work is carried on at the West London Hospital, which was the first London hospital to devote its clinical teaching entirely to graduates and contains 220 beds. There are lecture, reading and writing and class rooms provided with all conveniences for the benefit of graduates. The students accompany the staff on their visits to the wards at 2:30 daily and also go round with the resident medical officers in the mornings. Outpatient work begins at 2 p. m. There are ample facilities to see and examine patients. Graduates are appointed clinical assistants for three or six months. There are special practical classes in general surgery, gastro-intestinal surgery, medical and surgical dieases of children, blood and urine analysis, diseases of children, radiography, cystoscopy, venereal diseases, tropical diseases, retinoscopy, ophthalmic surgery and operative surgery. The size of the classes is limited. The anesthetists give instruction in administration, including spinal analgesia, and students are allowed to administer under supervision. Fees: Hospital practice, including all ordinary demonstrations and lectures, $5 for one week, $20 for one month, $36 for two months, $47 for three months. Instruction in administration of anesthetics, $15 a month.

THE NORTH EAST LONDON POST-GRADUATE COLLEGE

The work is carried on at the Prince of Wales General Hospital, North East London. The hospital contains 200 beds, and the teaching is entirely devoted to graduates. Facilities are given to those requiring special instruction in the various branches of medicine and surgery, including diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychologic medicine, dental surgery, radiography, electrotherapeutics and administration of anesthetics. Clinics, lectures and demonstrations are given by the staff. Special intensive courses lasting two weeks are held. Fees: Hospital practice in general medicine or surgery, $26 for three months, $10 for one month. Special departments: eye, $15; gynecologic, $26; ear, nose and throat, $26, all for three months. Clinical assistants are appointed from the graduates under certain conditions.

THE ROYAL NORTHERN GROUP OF HOSPITALS

The Royal Northern Hospital (214 beds) and the Royal Chest Hospital (85 beds) with convalescent branches at Southgate and Clacton have a total of 400 beds. The special departments, the wards, the operation theaters and the outpatient departments are designed to facilitate clinical work. The special departments are for fracture, genito-urinary, neurologic, physicotherapeutic, pathologic, tuberculosis, venereal disease and x-ray work. Demonstrations are given daily to graduates in the wards and outpatient departments. Clinical assistants are appointed. A new maternity department has been opened and the light department has been reequipped. Weekly lectures by the staff are free to all graduates, and special classes and demonstrations are arranged.

NEUROLOGY

The National Hospital (265 beds) is the home and center of British neurology, of which its staff has always included the leaders. It is therefore the place for graduates who desire to make a special study of neurology. The physicians attend daily and the outpatient physicians begin at 2 p. m. excepting Saturday. Postgraduate lectures and demonstrations are given thrice yearly, usually beginning in January, May and October and lasting eight weeks. There are special courses in neurologic ophthalmology, neuropathology and the anatomy and physiology of the nervous system. Clinical assistants are appointed from the graduates for six months. Fees: For three months' hospital practice, $26; for the outpatient department only, $10.

LUNGS

The Brompton Hospital for Consumption and Diseases of the Chest contains 350 beds, of which 25 are surgical. Clinical assistants are appointed from the graduates, and demonstrations are given throughout the year. Special courses of graduate teaching of one month's duration are given in October, November, January, March and June (fee, $20). Fees: one month's hospital practice, $5; three months', $10.

HEART

At the National Hospital for Diseases of the Heart (46 beds), systematic courses, with lectures and clinical demonstrations, are given. There are also intensive courses of a fortnight's duration in January, July and October. There is a full modern equipment for electrocardiography, x-rays and other graphic methods. Clinical assistants are appointed from the graduates. Fees: one month, $10; three months, $25. For those desiring special instruction in electrocardiography, a special fee is charged.

OPHTHALMOLOGY

The Moorfields Eye Hospital (138 beds) has long been the principal center of British ophthalmology. Operations are

performed daily and four surgeons attend daily. Special courses of instruction extend over a period of five months. Clinical and junior assistants are appointed every three months. Courses of five months begin in October and March. They include practical refraction classes, use of the ophthalmoscope, lectures on anatomy (including embryology and normal histology), physiology, optics, pathology and bacteriology, ophthalmic medicine and surgery (consisting of medical ophthalmology, external diseases of the eye, motor anomalies and squint, diseases of the retina and optic nerve, diseases of the uveal tract), operative surgery, clinical lectures, practical pathology, practical bacteriology, radiography, physical therapy and slit lamp microscopy. A composition fee of $37 admits to all lectures and classes except the classes on physical therapy and slit lamp microscopy.

CHILDREN

At the Hospital for Sick Children, Great Ormand Street (252 beds), 500 new outpatients are seen weekly. Clinical instruction is given daily. Eight medical clerks are appointed from the students every three months. The pathologic department gives facilities for practical instruction in clinical pathology and bacteriology and medical biochemistry. Courses of from eight to ten lecture demonstrations are given at weekly intervals twice a year. Special courses are held from time to time (generally in May and October). Fees: one month, $10; three months, $25. Clinical clerks and dressers, $5 for one month. Combined course in clinical pathology and bacteriology or biochemistry, $40.

MIDWIFERY

Queen Charlotte's Lying-In Hospital receives 2,300 patients annually besides having a large outpatient department. Graduates have unusual opportunities for seeing obstetric complications and operative midwifery on account of the large number of primiparas—nearly a half of the total. Clinical instruction is given on the most important cases. Also instruction is given in the antenatal department, where over 4,000 patients attend yearly. Special lecture demonstrations are given. There is a resident college which provides accommodation for graduates. Fees on application.

GYNECOLOGY

The Hospital for Women, Soho Square (82 beds) offers teaching available for graduates in limited numbers. Operations are performed daily at 2 o'clock. The x-ray department has the latest installation both for diagnosis and for treatment. Experience can be gained in the radium treatment of malignant disease. Incorporated is the London School of Gynecology, which comprises attendance in the outpatient department, operating theater, clinical lectures and x-ray treatment.

SKIN

The London School of Dermatology (33 beds) holds clinics daily at 2 and 6 p. m., when demonstrations are given. Systematic lectures on Tuesdays and Thursdays from October to March. Prospectus on application.

EAR, NOSE AND THROAT

The Central London Throat, Nose and Ear Hospital is open to all graduates. Demonstrations and clinical instruction are given daily; lectures on Fridays at 4. Intensive courses are given in May and October.

THE RECTUM

At St. Mark's Hospital (62 beds), operations are performed on Monday, Wednesday and Thursday at 2:30. Graduates are invited to the operations and are given clinical instruction. Two fortnightly courses are held during the year in cooperation with the Fellowship of Medicine.

GENITO-URINARY

St. Peter's Hospital for Stone and Other Urinary Diseases (30 beds for men and 2 beds for women and children) invites graduates to the clinical instruction given in the outpatient department daily and to the operations on Monday, Wednesday and Friday. Postgraduate lectures are given from time to time.

ORTHOPEDICS

At the Royal National Orthopedic Hospital (480 beds), postgraduate courses of fourteen days are held twice yearly. Outpatients are seen daily at 1:30.

Where fees are not given in the preceding list it can be assumed that no charge is made for admission to the hospital practice; but one would probably be made for special courses of instruction.

A New System for Outpatients

Under the present system an hour is fixed for the attendance of outpatients at hospitals and the result is that at the large hospitals many must wait for long periods, perhaps several hours, for their turn to see the physician. To avoid this waste of time, the Manchester Jewish Hospital has inaugurated a system similar to that used by physicians for their private cases. The hospital patients are given appointment cards to see members of the staff instead of having to wait their turn. The system has involved the establishment of an appointments bureau and booking plan, such as is used in theaters. This plan is claimed to save the patients 200,000 hours a year. It has not been found difficult to plan the speed at which the work is done and only in one case did it prove more than seven minutes behind the scheduled time. However, several London hospitals have expressed the view that, however admirable for a small institution, it would not do for the big London hospitals.

VIENNA

(From Our Regular Correspondent)

April 7, 1931.

The Present Status of Postgraduate Work in Vienna

The University of Vienna and its medical part, the Medizinische Fakultät, have always paid special attention to the problem of postgraduate instruction of medical men, and foreign physicians are always most welcome. At present, two corporations have been recognized as entitled to arrange such classes in this city, and every medical man desiring to do scientific work or to obtain instruction in Vienna in a methodical way should make use of the facilities thus offered to him. There are two kinds of courses, or classes: those in German for students of all nations, and those in English, as a rule presented only by English speaking physicians and arranged exclusively by the American Medical Association of Vienna (VIII Alserstrasse 9).

THE UNIVERSITY COURSES (IN GERMAN ONLY)

The medical faculty of the University of Vienna has arranged by means of the Kursbüro der Wiener Medizinischen Fakultät (VIII, N-22 Schlossergasse) three groups of classes:

International physicians' postgraduate courses, four times a year, under the exclusive control of the university and of the instructors who give them. These classes last two weeks from four to six hours a day. They are open to every medical man desiring to take part in them; some knowledge of German is necessary to obtain any benefit from them. They cover the latest achievements in research in therapeutics and diagnosis; the fee is 50 Austrian shillings ($7) per class for each person.

Group classes, comprising classes on a certain group of medical problems (neurology, psychiatrics, dermatosyphilology) or a combination of such problems in several branches of medical knowledge (ophthalmology, rhinolaryngology, electropathology, gynecology). The number of students for such groups is limited (from four to fifteen) and the fee is variable according to the duration of the class: from seven to fourteen days, from three to five hours every day, from 60 to 150 Austrian shillings ($1 is equal to 7 Austrian shillings).

Monthly classes occupying between six and thirty hours a month and costing between 60 and 150 shillings a month. As a rule a fee of 5 shillings is charged per hour per man. The classes are partly theoretical, partly practical work at the bedside and in the laboratories. They are given by the professors and their first assistants of the clinics and the hospital wards just as in the group classes. These monthly courses are in fact the best opportunities for graduate work as they can be taken repeatedly, as often as the student desires, and comprise the entire extent of medical work in our hospitals. The language of these classes is German, French, Italian or any other cultural language except English; the latter language is reserved exclusively for the courses arranged by the American Medical Association of Vienna (VIII Alserstrasse 9), as mentioned. Any physician (also members of the American Medical Association of Vienna) desiring to take part in one of these three kinds of classes must join the Kursbüro or Kursorganisation. The annual fee for membership is 10 Austrian shillings ($1.50), and every member can take part in any class at equal rates with all nationalities. Membership in the Kursbüro offers also other advantages, as for instance special rates in different hotels, pensions and restaurants, and the use of a well equipped medical reading room in the general hospital. Furthermore, the university arranges every year at least twice (this year three times) a special postgraduate class with a selected program lasting two weeks, from four to six hours daily, for a fee of 50 shillings ($7). The next class will be held from June 1 to June 14 and the subject is "Benign and Malign New Growths with Especial Reference to Early Diagnosis of Cancer" (pathology, clinical symptoms, therapy). The hours of work will be from 9 to 12:30 and from 4 to 6; the class is a comprehensive lecture and study of the problem of cancer, including the results of the latest research work. The number of students is not limited; work is done in more than a dozen wards and hospitals.

ENGLISH CLASSES

The American Medical Association of Vienna is recognized by the medical faculty of the University of Vienna as the official organization for arranging courses in English for its members, and the instructors and teachers of the medical faculty have agreed to limit their lectures in English to the members of the association only. A membership fee of $20 for life membership is now required, and a blue book is issued, showing all the classes arranged for the members and giving all necessary knowledge about Vienna and the university teaching. In addition to courses entered in the blue book, private classes on medical or surgical subjects may be arranged with the Vienna University lecturers and instructors. The fee for classes varies between $3 and $10 an hour, and as a rule is divided among the students. As each class has between four and ten places and lasts about ten hours, the cost for each class is about $10 to $15 for each student. Private classes (one or two men) cost about $10 an hour. The cost of graduate instruction in Vienna depends on the character of the work taken up, the number of limited or private courses, and the individual needs; it may be stated to vary between a sum of $50 and $200 a month. Arrangements for postgraduate work have been made with the following institutes: two institutes for normal anatomy; one each for histology; embryology; neurology; physiology, morphology; morbid anatomy, including a pathologic museum; general and experimental pathology; general medical chemistry; medical colloid chemistry; pharmacology; pharmacognosy; hygiene, public health and sociology; forensic medicine; electropathology, including a museum; medical history; serology and serotherapeutics; further with seventeen different clinics, including the dental clinic, with about 180 professors and clinical teachers, in thirty-four different hospitals comprising over 8,000 beds, and an enormous control x-ray department (Professor Holzknecht). The cost of living in Vienna is about $1.50 to $2 a day in a middle class pension (boarding house), and a little higher in one of the middle class hotels in the vicinity of the hospital district.

UNIVERSITY CERTIFICATES

The University of Vienna will grant for graduate work done here a certificate to every physician who proves to the dean of the faculty, by diploma or official certificate, that he is a graduate of a reputable medical school. For American physicians the dean will issue such certificates only to graduates of medical schools recognized by the American Medical Association in the United States or of such other schools as are accepted by the membership committee of the American Medical Association of Vienna. Applicants for a certificate must have studied medicine in Vienna at least four months and completed a minimum of 300 hours of work, this work to be done in a consecutive period of six months in this city under the teaching staff of the university.

PRACTICAL WORK IN HOSPITALS AND LABORATORIES

There are opportunities for appointment to internships or as hospitant in many of the medical and surgical clinics. Qualifications, duration of service and fees vary in the different places; but this valuable addition to postgraduate study is obtainable only after one has taken several courses in the clinic with the chief or assistants of the institute. Facilities for original work in the laboratories can also be had by consulting the professors in charge. Libraries exist in the university and the general hospital and the Gesellschaft der Aerzte and are open for a small fee.

PARIS

(From Our Regular Correspondent)

March 11, 1931.

Undulant Fever

Dr. Arnold Netter has just presented to the Academy of Medicine a report on undulant fever and its development throughout the entire world. He thinks that the ravages of this disease will continue to increase in all countries in which it is known, including France, and that it is time that serious measures were adopted here against it. He regards as absolutely demonstrated that its causative agent is *Brucella abortus*, since Kristensen published his convincing observations. The true disease is the epidemic abortive fever that occurs in cows. The passage of the micro-organism through the sheep, the goat and the pig is only secondary, although dangerous for the person contaminated by these animals, in which its virulence is increased. Undulant fever is communicated by the goat to man by the use of milk and cheese derived from the animal, whereas, when the micro-organism comes from cattle, contamination by the milk is more exceptional. The micro-organism is less frequent in cow's milk, and, in the digestive tract of man, traverses less easily the intestinal mucosa when it is derived from cow's milk. It is its passage through the goat that renders it more capable of infecting man through the digestive tract. The bacillus from cattle penetrates the organism of man through the skin—through cutaneous abrasions in persons having contacts with cattle suffering from epidemic abortion. That is why farmers, and more particularly dairymen and veterinarians who take care of sick cattle, are the ordinary victims much more than persons who have drunk milk from sick cows. Dr. Netter advises, as a prophylactic measure, that all persons who come in contact with sick cows should wear gloves. Milk and cream used for butter and cheese must be pasteurized in localities in which there is an epidemic. Pasteurization is sufficient protection against cow's milk. The sale of milk from a herd of goats that is contaminated should be prohibited, for goat's milk does not withstand sterilization. Vaccination by means of heated cultures has been proposed by Dubois and Sollier for persons who are especially exposed through the nature of their

occupation; for instance, on farms where there is an epidemic among the cattle, sheep or goats. Netter recommended that, before vaccination is advised in localities affected by epidemics, it would be well to wait until the procedure has been given a more thorough trial.

The Construction of Hospitals

Many hospitals in France are not in keeping with the present needs. Construction plans covering new buildings and extensions and contemplating the expenditure of nearly $40,000,000 have been adopted by the cities and the departments of France. Since communities in need of government aid may demand subsidies up to 50 per cent of the cost of a proposed improvement, the minister of public health is facing demands for aid amounting to $20,000,000. He has available only $2,000,000 a year, which is derived from funds that flow into the state treasury from the government's legal participation in the paris mutuels at the race tracks. Thus the commission on distribution can grant only fractioned subsidies to be paid over a series of years. Under these conditions the work will have to be carried out slowly, a little each year, which will add considerably to the total cost. The result in the past has been that important hospital establishments, such as those at Toulouse, Lyons, Perpignan, Béziers, Nice, Dax, Vesoul, some of which were begun as far back as 1906, are not yet completed. The same is true of others, less extensive but also needed. It was necessary to put an end to this situation. Accordingly, the minister of public health, with the consent of the cabinet of ministers, has filed a bill that, without increasing the budget expenditures, will, if it becomes a law, permit the more rapid financing of building operations. According to the new project, instead of merely distributing fractioned subsidies in the form of cash, a part of the funds derived from the paris mutuels (up to $800,000 a year) may be used for annual subsidies necessary to meet the payments on loans to be contracted by the cities and the various communities that are constructing hospitals, asylums and hostels. The cities and the communes, if they have not the necessary funds to proceed rapidly with construction work, will float loans covering the total cost of construction, 50 per cent of the amortization payments on which will be assumed by the central government. This arrangement, which will not necessitate the addition of new appropriations to the present budget, combined with the program for national equipment, will permit, in five years, the realization of the program of hospital construction with which the ministry is faced. With $800,000 derived annually from the paris mutuels and a like amount raised by the cities and the communes it will be possible to negotiate loans amounting to $22,800,000.

BERLIN

(From Our Regular Correspondent)

March 9, 1931.

Aid for Cancer Patients

At the Deutsches Institut für Frauenkunde, Professor Blumenthal and Professor Liepmann described the development of cancer control in Berlin. Blumenthal, who is the director of the cancer institute in the Charité Hospital, gave an account of the origin and development of this institute, which was created in 1903 and was only recently taken over by the central government. The institute serves primarily cancer research. Cancer diagnosis and therapy, the relations between cancer and accident, evidence for the hereditary transmission and infectiousness of cancer, the influence of social conditions and of occupation, diet, and experimental cell research, are some of the problems studied in the institute, in spite of its restricted resources. With the aid of private funds, Blumenthal procured, during the war, roentgen apparatus and 130 mg. of radium, and bought and rented from the Auer-Gesellschaft 800 mg. of mesothorium, which is much cheaper than radium. In the cancer institute, the so-called distant irradiation with radium cannot be carried out, as it requires from 2 to 4 Gm. of the radioactive substance, but few patients require such treatment; furthermore, it is not at all certain that this method is superior to other procedures, so that it is useless to send cancer patients to foreign countries.

Wherein Germany is surpassed by foreign countries is in the organization for the detection of cancer patients, centralization of treatment and the training of physicians in the treatment of cancer patients. The twenty beds that are at the disposal of the institute in the Charité Hospital do not suffice, so that Blumenthal was forced to rent twenty beds in an adjacent clinic. The provisions for patients with advanced cancer are very inadequate. These patients are usually placed in infirmaries, where the opportunities for treatment and adequate care are lacking.

The progress of cancer research is unquestionable, especially with reference to the treatment. The treatment should, however, be more centralized and placed in the hands of physicians who understand it. The decentralization process, with the result that everywhere in Germany small amounts of radium are purchased and cancer treatment centers are created, should be checked, as it is not desirable. Two of three large cancer centrals would suffice, and in every province, or at least in every *land*, a substation. For the large cancer centrals, 2 Gm. of radium or radioactive substance will suffice; for the substations, from 300 to 400 mg. A federal committee is being organized to work against decentralization in this field.

Prof. Dr. Liepmann reported that, during the past six years, he had treated in his clinic 2,000 cancer patients (among others, 1,000 with cancer of the uterus) with radium, roentgen rays and surgery. The new tumor clinic, which is being financed by the committee of the Berlin sick benefit associations and the Hauptverband deutscher Krankenkassen, will bring up to 100 the total number of beds for women cancer patients. For the education of the public, a museum of gynecology has been established in the institute, which has been visited by more than 20,000, while 500,000 leaflets have been distributed among the members of the sick benefit associations. An important measure in the combating of cancer disease in Berlin is the creation of the merger between the economic department of the Gross-Berliner Aerztebund, the Landesversicherungsanstalt Berlin and the Verband Berliner Krankenkassen, which hopes to be able to secure the passage of legislation making cancer disease notifiable; to provide aid for cancer patients during and after intensive treatment, and to create—at first in the cancer institute of the city of Berlin and in the Deutsches Institut für Frauenkunde, suitable centers for the benefit of the members of the league, together with the insured members of their families.

A report on the activities of this new cancer aid movement was given by its new head, Professor Benedix. In case of doubt as to the diagnosis and treatment, the cancer aid center counsels with specialists and provides for the admission of the patients to a hospital or to an institute for irradiation. The center sees to it that when one source of aid has been exhausted another shall take its place, so that the patient shall not suffer any interruption in the treatment. Benedix thinks that the city of Berlin should become identified with this cancer aid movement.

Epidemic of Lead Poisoning from Drinking Water

In The Journal, Nov. 29, 1930, p. 1684, reference was made to lead poisoning in Leipzig resulting from the drinking water. Following more detailed investigations, Kruse, professor of hygiene in Leipzig, and Fischer have issued a further report on the subject: The Leipzig tap water contained, during the epidemic, dangerous quantities of lead—in the new buildings of 1930 about 8 to 19 mg. per liter, on the average, but careful investigations have shown that that was not the case before 1929. No essential changes in the chemical composition of the water have been discovered. But there has been an unusually

marked lowering of the subterranean water level, and there have been certain changes in the mode of obtaining the water supply, which consist, however, only in an extension or renewal of the previous methods of securing subterranean water. Since in former years, according to the results of the regular and numerous testings of the water supply, in the late summer and autumn, the lead content of the tap water in the central area commonly increased somewhat, it looks as if the lowering of the level of the subterranean water increased its capacity to dissolve lead. The greatly increased lead content of the water may therefore be due to the mechanical lowering of the pipes, together with a natural lowering of the water level. Just what substances have played a part in these changes is not yet clear. Fortunately, the rendering of the water innocuous does not depend on a complete understanding of the causes that enter into the situation. By the addition of solution of calcium hydroxide in suitable amounts, the quantity of lead could be reduced to a minimum. This fact invalidates the arguments advanced in certain quarters that the lead pipes in houses should be replaced by iron or copper pipes. That would seem to be going too far to reject the technically most suitable metal for water pipes because of rare epidemics of lead poisoning.

Of 2,500 persons examined, 33.1 per cent gave a positive blood test. Three hundred punctate erythrocytes (with basophil granulations) per million red corpuscles was taken as the dividing line. Of the 33.1 per cent with positive blood manifestations, 228, or 27.3 per cent, presented a distinct lead line; accordingly, 9.1 per cent presented these two most important evidences of lead poisoning. From the statements of the examinees as to the symptoms no conclusions could be drawn, as the statements did not agree. A large percentage of the persons examined had been sent by physicians, but only 36 per cent of such persons were blood-positive.

As Weigeldt at the same session of the Leipziger Medizinische Gesellschaft stated with regard to the clinical aspects of lead poisoning, there came many patients with organic disease, particularly patients with gastritis, gastric ulcer or cholelithiasis, asserting that they had lead poisoning. Severe lead poisoning was very rare. Permanent injuries are scarcely to be expected in any case. Severe colic and liver cell injuries were observed in only two cases. The concurrence of lead poisoning from tap water and through occupational work required many difficult decisions. In the individual case the blood picture was less revealing than the exact clinical examination. The basophilia of the erythrocytes was not a reliable criterion for the severity of the lead poisoning. Colic and excretion of hematoporphyrin did not, as a rule, run parallel. Examination of the gums with a magnifying glass or a capillary microscope was found to be an excellent technic. The elimination of lead was greatly influenced by diet and medicaments. The Aub method of treatment proved satisfactory. The first aim was fixation of the ingested lead, especially that in the bones. The removal of the lead from the organism was accomplished slowly with acidulation, an endeavor being made to avoid sudden mobilization of the lead in the organism. The lead colic was easily combated by means of calcium administered intravenously. Absence of the lead line does not exclude lead poisoning; its presence is not evidence for lead poisoning but only for ingestion of lead at the most. With regard to stippling of the erythrocytes, it was found that the physiologic limit of the basophils is higher than was supposed. Not until 500 stippled cells in a million are found can one assume the presence of lead poisoning, and then only in case the clinical symptoms are in accord. An increased number of erythrocytes with vital staining strengthens the diagnosis of lead poisoning. The fact that occasionally stippling occurs in other than lead poisoning (cement dust, coal dust, alcohol) does not lessen the otherwise great importance of basophilia as one of the most important early symptoms. There were 340 cases of lead poisoning reported.

Marriages

JAMES STEVEN BROWN, JR., Hendersonville, N. C., to Mrs. Dorothy M. Lord of Richmond Hill, L. I., New York, in Singapore, Straits Settlements, March 3.

THOMAS DYER ALLEN, Evanston, Ill., to Ruth Delzell Mather of Kalamazoo, Mich., February 24.

ISAAC H. SHELLY to Miss Rebecca Roberts, both of Norristown, Pa., March 3.

EUGENE A. SCHARFF to Miss Louise Gruber, both of St. Louis, March 30.

RICHARD W. PERRY, Seattle, to Miss Ruth Ardis Wood, recently.

Deaths

George Roe Lockwood, Washington, D. C.; Medical Department of Columbia College, New York, 1884; professor of clinical medicine, Columbia University College of Physicians and Surgeons; formerly on the staff of the Bellevue Hospital; author of "Practice of Medicine," and "Diseases of the Stomach"; aged 69; died, March 2, in the Johns Hopkins Hospital, Baltimore, of pneumonia, following an operation.

Gilbert David Gregor ⊕ Watertown, N. Y.; Medical Department of the University of the City of New York, 1883; member of the American College of Surgeons; on the staffs of the Mercy Hospital and the House of the Good Samaritan, Watertown, and St. Lawrence State Hospital, Ogdensburg; aged 72; died, March 19, of ruptured abdominal aneurysm, arteriosclerosis and chronic myocarditis.

Charles Edward Gibbs, Kings Park, N. Y.; Medical Department of the Tulane University of Louisiana, New Orleans, 1912; member of the Medical Society of the State of New York, and the American Psychiatric Association; on the staff of the Kings Park State Hospital; aged 42; died, Nov. 5, 1930, of bronchopneumonia.

Corydon G. Dwight, Glendale, Calif.; Hahnemann Medical College and Hospital, Chicago, 1897; member of the State Medical Society of Wisconsin, and the American College of Surgeons; aged 60; died, March 6, in the Compton (Calif.) Sanitarium, of cerebral arteriosclerosis, chronic interstitial nephritis and hypertension.

William T. Tilly, Ottawa, Kan.; Louisville (Ky.) Medical College, 1894; member of the Kansas Medical Society; past president of the state board of medical examiners; formerly county superintendent of health; aged 66; died, March 10, in a hospital at Muskogee, Okla., of heart disease and nephritis.

Lewis C. Morgan, Mount Vernon, Ill.; Hospital Medical College of Evansville, Ind., 1886; member of the Illinois State Medical Society; at one time mayor of Mount Vernon; formerly bank president; aged 69; died, April 2, in Kansas City, Mo., of coronary occlusion and arteriosclerosis.

Frederick A. Sherrer ⊕ Easton, Pa.; Medico-Chirurgical College of Philadelphia, 1898; member of the American Roentgen Ray Society and the Radiological Society of North America; formerly on the staff of the Easton Hospital; aged 54; died, March 13, of cerebral hemorrhage.

Charles Kennedy ⊕ New York; Medical Department of the University of the City of New York, 1898; University and Bellevue Hospital Medical College, New York, 1908; aged 55; died, March 19, in the Presbyterian Hospital, of chronic nephritis, uremia and bronchopneumonia.

Herman Oliver Hodson, Leesburg, Ohio; Ohio State University College of Homeopathic Medicine, Columbus, 1916; member of the Ohio State Medical Association; county health officer; aged 40; died, March 25, of a self-inflicted bullet wound.

James Mathew Rivers, Turkey, Texas; Memphis (Tenn.) Hospital Medical College, 1902; member of the State Medical Association of Texas; aged 58; died, March 6, as the result of injuries received in an automobile accident last November.

Thomas Francis Kenney ⊕ Worcester, Mass.; Harvard University Medical School, Boston, 1905; health officer of Worcester; aged 50; died, March 15, in the Peter Bent Brigham Hospital, Boston, of chronic cardiac valvular disease.

Alfred Abraham Herzfeld ✠ Los Angeles; Medical Department of Columbia University, New York, 1891; member of the Medical Society of the State of New York; aged 64; died, February 1, of chronic myocarditis and arteriosclerosis.

Charles John Craythorn ✠ Trenton, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1894; on the staffs of the Mercer Hospital and the Municipal Colony; aged 74; died, March 28, of carcinoma of the pancreas and liver.

Edward A. Mansuy, Bradford, Pa.; College of Physicians and Surgeons, Baltimore, 1906; member of the Medical Society of the State of Pennsylvania; aged 58; died, March 4, of chronic myocarditis and shock from an automobile accident.

William E. Beardsley, Brooklyn; Bellevue Hospital Medical College, New York, 1876; aged 80; died, March 3, in the New York Post-Graduate Hospital, of chronic cholecystitis, cholelithiasis, chronic myocarditis and arteriosclerosis.

Thomas Daniel Galligan, Eganville, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1886; aged 71; died, January 16, in the Montreal General Hospital, of pneumonia, following an operation for carcinoma of the intestine.

Charles B. Taylor, Lincoln, Ill.; University of Louisville (Ky.) School of Medicine, 1881; formerly county coroner; at one time superintendent of the Lincoln State School and Colony; aged 72; died, February 16, in St. Clara's Hospital.

Joseph Rogers, Alexander, N. D.; University of Toronto Faculty of Medicine, 1905; member of the North Dakota State Medical Association; aged 53; died, February 20, in Williston, of typhoid fever, phlebitis and pulmonary infarct.

Joseph Zuerner, Jeffersonville, Ind.; University of Louisville (Ky.) School of Medicine, 1878; formerly a druggist; at one time city health officer; aged 83; died, March 9, of carcinoma of the stomach and arteriosclerosis.

Julius C. Schulz, Wellsburg, W. Va.; Ohio-Miami Medical College of the University of Cincinnati, 1912; member of the West Virginia State Medical Association; aged 52; died suddenly, March 15, of cerebral hemorrhage.

Joseph McConnell Timmons, West Alexander, Pa.; Jefferson Medical College of Philadelphia, 1894; aged 63; died, February 28, in the Ohio Valley General Hospital, Wheeling, W. Va., following a mastoid operation.

John Patrick Jackson, Fall River, Mass.; College of Physicians and Surgeons, Baltimore, 1903; aged 51; died, February 20, of heart disease, aboard the S. S. *Statendam,* while en route from Cuba to New York.

Charles Edmund Hannan ✠ Johnstown, Pa.; Jefferson Medical College of Philadelphia, 1892; member of the American College of Surgeons; aged 61; died, March 11, in Hampton Springs, Fla., of lobar pneumonia.

William Hamilton Dulaney, Lynchburg, Va.; University of Maryland School of Medicine, Baltimore, 1859; Civil War veteran; formerly member of the city council; aged 94; died, March 9, of cerebral hemorrhage.

William George Jamieson, Cobourg, Ont., Canada; University of Toronto Faculty of Medicine, 1916; served with the Canadian Army, during the World War; aged 43; died, February 27, of pneumonia.

William S. Archer, Bel Air, Md.; University of Maryland School of Medicine, Baltimore, 1880; member of the Medical and Chirurgical Faculty of Maryland; aged 75; died, April 2, of carcinoma of the liver.

Addison Davis Hard, Long Beach, Calif.; University of Michigan Medical School, Ann Arbor, 1883; Jefferson Medical College of Philadelphia, 1884; aged 77; died, February 16, of hypertrophy of the heart.

Charles B. Broder ✠ New York; Cornell University Medical College, 1905; on the staffs of the People's Hospital and the New York Eye and Ear Infirmary; aged 50; died, February 15, of pneumonia.

Everett R. Taylor ✠ Morgantown, W. Va.; College of Physicians and Surgeons, Baltimore, 1907; on the staff of the Monongalia County Hospital; aged 47; died, March 11, of coronary occlusion.

Oscar Tagg, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1901; aged 52; died, March 11, in the Philadelphia General Hospital, of subacute bacterial endocarditis.

Kingsley Hulme Holmes, Chatham, Ont., Canada; University of Toronto Faculty of Medicine, 1903; aged 51; died, February 5, in the Grace Hospital, following an operation for appendicitis.

Samuel A. Goodin, Markle, Ind. (licensed, Indiana, 1901); member of the Indiana State Medical Association; aged 78; died, March 22, in Bluffton, of prostatitis and hypostatic pneumonia.

Fred M. Moss, Paris, Mo.; Kentucky School of Medicine, Louisville, 1881; member of the Missouri State Medical Association; aged 76; died, March 4, of pneumonia, following influenza.

Hertz Nathaniel Meleck, Minneapolis; Medical Department of Hamline University, 1903; also a lawyer; served during the World War; aged 51; died, February 24, of heart disease.

Henry Flemin Leedom, Kearney, Neb.; Ensworth Medical College, St. Joseph, 1893; member of the Nebraska State Medical Association; aged 63; died, March 27, of myocarditis.

David J. Bartlett, Venice, Calif.; University of Nebraska College of Medicine, Omaha, 1892; aged 83; died, February 18, in the Baldy View Sanitarium, San Gabriel, of pneumonia.

George Luther Loden, Colbert, Ga.; Atlanta Medical College, 1914; formerly member of the city council and chairman of the board of education; aged 44; died, February 13.

Jefferson F. Hill, Memphis, Tenn.; Memphis Hospital Medical College, 1887; aged 70; died, March 8, of abscess of the rectum, gangrene of the scrotum and arteriosclerosis.

Walter H. Pollmann, St. Louis; St. Louis University School of Medicine, 1907; member of the Missouri State Medical Association; aged 47; died, March 2, of pneumonia.

George Henry Crane ✠ Holstein, Iowa; State University of Iowa College of Medicine, Iowa City, 1896; aged 62; died, March 31, in Orlando, Fla., of coronary thrombosis.

John Letherman Tombaugh, Odell, Ill.; Northwestern University Medical School, Chicago, 1903; aged 50; died, February 10, of hemiplegia due to cerebral thrombosis.

Narra Wilford Goodloe, Cash, Texas (registered, by Texas State Board of Medical Examiners, under the Act of 1907); aged 81; died, February 22, of pneumonia.

Wilmot A. Graham, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1903; aged 49; died, March 8, in the Toronto General Hospital, of pneumonia.

Ambrose G. Cowles, Durand, Mich.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1878; formerly health officer of Durand; aged 84; died, January 10.

Charles Franklin Mitchell, Windsor, Mo.; Louisville (Ky.) Medical College, 1879; aged 77; died, March 7, of hypertrophy of the prostate and uremia.

John W. Cosford, Spokane, Wash.; Eclectic Medical Institute, Cincinnati, 1880; aged 83; died, in March, of carbuncle of the neck and hypostatic pneumonia.

Hudson McBain Gillis ✠ Woodriver, Ill.; St. Louis College of Physicians and Surgeons, 1907; aged 50; died, March 22, of coronary thrombosis.

Alfred Webb, Newmarket, Ont., Canada; University of Toronto Faculty of Medicine, 1895; died, February 17, in the Toronto General Hospital.

Russell A. Roberts, Lenexa, Kan.; Medical College of Indiana, Indianapolis, 1887; aged 73; died, in March, of pulmonary tuberculosis.

Patrick Francis Gahan ✠ Medford, Mass.; Jefferson Medical College of Philadelphia, 1896; aged 67; died, March 18, of heart disease.

Samuel Watson Hart, Mineola, Texas; University of Louisville (Ky.) School of Medicine, 1888; aged 65; died, Nov. 24, 1930.

John Lagan, San Francisco; L.K.Q.C.P., Dublin, Ireland, 1886; aged 76; died, February 16, of acute gastritis and chronic myocarditis.

William Levi Wade, South Pasadena, Calif.; Medical College of Indiana, Indianapolis, 1879; aged 89; died, February 18, of senility.

Charles B. Sarver, Charleston, W. Va.; Barnes Medical College, St. Louis, 1901; aged 70; died, February 28, of diabetes mellitus.

John Albert Kennedy, Modesto, Ill.; St. Louis University School of Medicine, 1907; aged 49; died, March 11, of heart disease.

Benjamin Skinner, Pawhuska, Okla.; Kansas City Medical College, 1896; aged 67; was found dead in his office, February 19.

Claude Leslie McClelland, Ontario, Calif. (licensed, California, 1916); aged 53; died, February 15.

Bureau of Investigation

EKSIP

The Fraudulent Diabetic Cure of Matthew Richartz Debarred from the Mails

For some years, one Matthew Richartz of New York City has been swindling diabetics through the sale of a product called Eksip, advertised under the claim that it was unnecessary to diet if one would take Eksip. This fraud was first dealt with in this department of THE JOURNAL, April 1, 1922, at which time, it was shown that Eksip consisted essentially of magnesium carbonate and starch. Further reference was made to the same humbug in the "Queries and Minor Notes" department and the "Correspondence" department of THE JOURNAL, November 22, 1924, and December 6, 1924, respectively. Finally, a more extensive article appeared in the Bureau of Investigation department of THE JOURNAL, May 22, 1926, carrying the subtitle, "A Vicious Piece of Mail-Order Quackery." At that time the hope was expressed that the postal authorities would finally get around to the concern.

They have, and on February 26, 1931, a fraud order was issued against Matthew Richartz, Inc., and its officers and agents as such, and this swindle has been debarred from the United States mails.

The memorandum of the Hon. Horace J. Donnelly, Solicitor for the Post Office Department, to the Postmaster General, recommending the issuance of the fraud order in this case, is an unusually voluminous affair of nearly forty pages. It appears from this memorandum that connected with Matthew Richartz in this fraudulent business was his nephew, Hermann Richartz, and one Harry W. Johnson. Notice was first given the Richartz concern to show cause why a fraud order should not be issued against it as long ago as October, 1929, but numerous delays occurred before the matter came to a finial hearing. It is said that the stenographic transcript of the testimony in this hearing comprised 1284 pages, not including the documentary exhibits introduced in the evidence both by the government and by the "patent medicine" concern.

From the Solicitor's memorandum, we learn that: Matthew Richartz is sixty-two years old, was born in Germany and received only four or five years' schooling. He left Germany in 1886 and went to Holland, and later to England, and in 1895, reached New York. During all this period, he was a barber. After reaching New York, he became a business agent for the barber's union! He started his fraudulent Eksip business in 1921. Richartz' story, regarding the genesis of the swindle, was that his brother, William Richartz, in Germany, told him about the preparation in 1919 or 1920. Matthew Richartz interested Dr. Edmond Kolb of New York City in the scheme and Kolb tried the stuff out on his patients, even though he did not know the formula of the tablets.

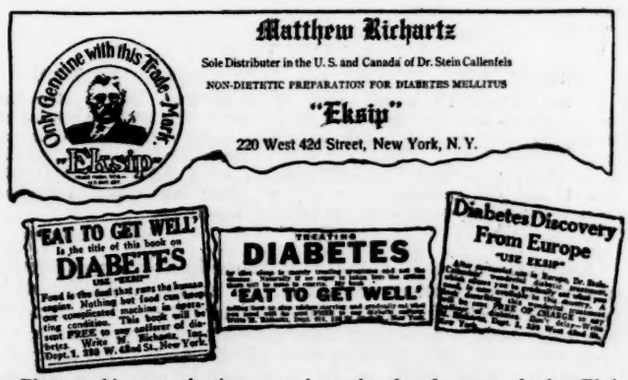
The story was that Eksip originated with a "Dr. Stein-Callenfels," who was described as a "noted European specialist who, after a life-long study, amazed other European specialists with his famous discovery." There never was any such noted European specialist. The story continued that William Richartz of Germany, brother of Matthew Richartz, on the death of the nonexistent specialist, purchased from the heirs of the nonexistent specialist the preparation, Eksip, which was later put on the American market.

It was brought out at the Post Office hearing, however, that William Richartz of Germany had completely changed the formula of the original Eksip, although all the advertising was based on the claim that it was the Stein-Callenfels product. In other words, the entire business was shot through with fraud.

The analysis of Eksip made for the postal authorities by government chemists, verified the analysis that had been made in the A. M. A. Chemical Laboratory four or five years previously—namely, that the stuff was, essentially, magnesium carbonate, talc and starch! The postal authorities also developed the worthlessness and, in some cases, the fraudulence of the testimonials used by Richartz in the exploitation of this fraud. One of the testimonials that was being played up, as late as 1929, was from J. C. Meyers of Charleston, S. C. The federal investigators found that Mr. Meyers had been dead five years—cause of death, diabetes! Yet, in the testimonial, emphasized by blackfaced type, one reads: "I am a living advertisement for Eksip . . . for if it had not been for Eksip and God's blessing, I would have been in my grave today."

It appeared, also, from the evidence that the Richartz concern practically offered to purchase testimonials. An osteopath, who had used Eksip and whose title, "Dr.," would doubtless have been looked upon by Richartz as an asset, was written to by the Eksip concern and asked to write a few words stating his experience with Eksip. The osteopath was told that Richartz wanted this because when medicine was sold through the mails, it was necessary to submit a report to the Post Office Department as evidence of the sincerity of the business! The Post Office Department does not, and never has, required any such report. The osteopath was told in the closing paragraph of the request for a testimonial that "if there was any expense for service, etc., kindly enclose your bill."

Richartz submitted one living witness, who was not connected with the exploitation, as a testimonial for Eksip—Mr. Lewis L. Smith. Mr. Smith, a diabetic, testified that since taking Eksip, he had been greatly benefited and he "didn't bother about diet any more." Three days after he testified, and before the conclusion of the hearing, Mr. Smith died of diabetes! It was also brought out at the hearing that in 1927, the officials who enforce the Food and Drugs Act



Photographic reproduction, greatly reduced, of some of the Eksip advertising. The newspaper advertisement in the lower left-hand corner appeared in the Chicago *Herald and Examiner*, March 8, 1931—ten days after the government had declared Eksip a fraud and debarred it from the mails.

proceeded against Richartz and required him to eliminate mention of diabetes from the trade package. He did so, but continued to claim in all advertising matter that was not part of the trade package and, therefore, not subject to the Food and Drugs Act, that the stuff was a "cure" for diabetes.

It appears from the Solicitor's memorandum that the really active man in this piece of quackery is Harry W. Johnson, a former advertising man, who seems to have been responsible for writing a good deal of the literature. During 1928, Eksip brought in to the Richartz concern over $91,000 and during the first ten months of 1929, over $76,000. About $20,000 a year was spent by this fraud factory in advertising. This was the price that certain newspapers and magazines exacted from the Richartz fakery in order to make it possible for it to swindle the public.

In reading the voluminous report of Solicitor Donnelly, addressed to the Postmaster General and recommending the issuance of a fraud order in this case, and remembering that this report is but a fraction of the total testimony in the hearing, one is impressed with two things: First, the difficulties that beset federal officials in the performance of their duty to protect the public against medical swindles, and, second, the astounding amount of public time and money necessary to produce the protection called for.

In the present case, some utterly worthless and innocuous tablets are sold as a cure for one of the most serious diseases known to medical science—diabetes. They are sold under the claim that those purchasing them do not need to diet but, in

effect, can eat anything they want. They are sold under the further claim that they were the "discovery" of a noted European specialist, who in fact never existed. Yet, in order to prove the fraudulence of this business, it was necessary for the government to do a vast amount of investigating, consume a large amount of public time and money, call on medical and pharmacological experts, and in other ways treat this whole matter as though it were a controversial scientific question. All this is necessary under our legal conception that a man is assumed to be innocent until he is proven guilty.

These facts are merely referred to so that, when physicians are tempted to become restive and indignant at the way in which medical frauds are perpetrated through the United States mails, they may know some of the innumerable difficulties that surround the tasks of the postal officials in producing the evidence necessary for the issuance of fraud orders. And the more financially successful the fraud, the more difficult is the task of the officials. A concern that is taking in nearly $100,000 a year and splitting its profits, to the tune of $20,000 a year, with newspapers and magazines, will not give up such a lucrative fraud without exhausting every legal technicality.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PROCREATIVE POWER OF INDIVIDUAL TESTICLE

To the Editor:—The rating boards of the Veterans' Bureau often ask for an opinion from the medical examiners as to the loss or presence of procreative power in each testicle separately, since the rating is done for the individual testicle. How can this be determined when the testicle in question is partially atrophied and the other testicle is apparently normal, and the claimant is not sterile? Any information, tests and references will be appreciated. Please use initials only.

M.D., Tennessee.

ANSWER.—There is no way of determining the procreative power of each testicle separately. A small atrophic testicle may have absolutely normal procreative power. In a condom specimen there is no way of determining which speratozoa come from either testicle. Even if each testicle were to be aspirated separately, spermatozoa might be found in each one but the comparative value of the procreative power of either testicle could not be judged from the quantity. Of course, if repeated aspiration of the atrophic testicle should always show no spermatozoa in the aspirated fluid, it could then be stated that in all probability that testicle had lost its spermatogenic function. Catheterizing each ejaculatory duct would not give any information.

TREATMENT OF PAINFUL INTERCOURSE AND PSYCHOSIS

To the Editor:—A white woman, aged 31, married, weighing 93 pounds (42 Kg.), suffers constantly with uterine pains. She has a slight odorless vaginal discharge; she menstruates irregularly and in small amounts. Sexual intercourse has always been painful during the entire married life of seventeen years. She has had one child. A cyst was removed from the left ovary in 1921. She has had repeated dilations and curettage of the uterus for the removal of intra-uterine polyps. She remains somewhat neurotic. Physical examination revealed a small uterus; the vaginal opening will admit the index finger only and then with some pain. All blood examinations were negative; hemoglobin was 90 per cent. What type of treatment would you recommend for uterine pain and painful intercourse?

M.D., South Carolina.

ANSWER.—It appears that there is an intense psychic factor here to account for both the uterine pain and the painful intercourse. Since the patient has had a child, the finding of a vaginal orifice which admits only one finger and this with pain indicates that the patient probably has a spasm of the levator ani muscles. Another possibility is that the patient had a laceration at childbirth and in the repair of this the vagina and perineum were improperly sutured. Spasm of the levator ani muscles is the most likely cause in this case and it usually has a psychic basis. The patient is distinctly underweight and a decided effort should be made to increase the weight and build up the general condition. The psyche should be treated by tactful and informational talks. Medication is of assistance only for its effect on the mind.

POLLENS OF NORTH CAROLINA

To the Editor:—Please give me a list of the wind-borne pollens and time of pollination in the locality of eastern North Carolina. I should also like to know if you can furnish the ones which are most frequently found to be the cause of hay-fever and bronchial asthma.

M. EDWARD BIZZELL, M.D., Goldsboro, N. C.

ANSWER.—A complete list of the wind-pollinated plants of eastern North Carolina would be much too large for the space here available. Of the grasses alone there would be considerably more than a hundred species. Dates of pollination cannot be given exactly, as they vary with the locality and season. The seasonal variation is greatest in the pollination of the trees. Favorable weather will sometimes bring the early blooming trees into flower as much as three weeks earlier than the usual time. The following list contains typical representatives of the groups given. With the exception of pine and marsh grass, all are known to be active in allergy. The most common offenders in each group are marked with an asterisk. It must be remembered, however, that the ragweeds are much more important in this territory than all other pollens taken together. Specific data on the ragweed season at Raleigh, N. C., were given by O. C. Durham in THE JOURNAL, June 14, 1930, p. 1907.

Common Name	Botanic Name	Date of Pollination
TREES AND SHRUBS		
Hazelnut	Corylus americana	February-March
Maple	Acer saccharinum	February-March
*Elm	Ulmus americana	February-March
Ash	Fraxinus americana	March
Red birch	Betula nigra	March
Cottonwood	Populus deltoides	March
Ironwood	Ostrya virginiana	March
Willow	Salix spp.	March-April
Pine	Pinus spp.	March-April
Sycamore	Platanus occidentalis	March-April
*Oak	Quercus spp.	March-April
Sweet gum	Liquidamber styraciflua	April
Hackberry	Celtis occidentalis	April
Hickory	Hicoria spp.	April
Tree of heaven	Ailanthus glandulosus	May
GRASSES		
Annual bluegrass	Poa annua	April-October
Sweet vernal grass	Anthoxanthum odoratum	May
*Bluegrass (June grass)	Poa pratensis	May
Orchard grass	Dactylis glomerata	May
*Timothy	Phleum pratense	May-June
Redtop	Agrostis palustris	May-June
*Bermuda grass	Capriola dactylon	May-July
Meadow fesque	Festuca elatior	June
Johnson grass	Sorghum halepensis	July-September
Wild rye	Elymus spp.	July
Crab grass	Syntherisma sanguinalis	July-August
Corn	Zea mays	July-August
Harsh grass	Spartina spp.	August-September
WEEDS		
English plantain	Plantago lanceolata	April-July
Red sorrel	Rumex acetosella	April-May
Dock	Rumex spp.	April-May
Lamb's quarter	Chenopodium album	June-October
Pigweed	Amaranthus retroflexus	July-October
Hemp	Cannabis sativa	July-September
Salt marsh water hemp	Acnida cannabina	July-August
Spiny amaranth	Amaranthus spinosus	July-September
Tall wormwood	Artemisia caudata	July-September
Seacoast marsh elder	Iva imbricata	July-October
Cocklebur	Xanthium spp.	July-October
Wormseed	Chenopodium ambrosioides	August-September
*Short ragweed	Ambrosia elatior	August-September
*Giant ragweed	Ambrosia trifida	August-September

USE OF A. C. E. MIXTURE

To the Editor:—Can you give me any data on Alkoform as used in the Hinkle machine, especially regarding its safety?

W. ELLWOOD TEW, M.D., Bessemer, Mich.

ANSWER.—The mixture known as A. C. E., which is alcohol, chloroform and ether, was discarded years ago as a routine anesthetic in this country, the general impression being that the mixture is about as dangerous as chloroform, which is its most dangerous constituent. Chloroform is little used in this country, whereas the English physicians are inclined to favor it. Apparently the burden of proof is on the Hinkle Company to show that the use of this mixture with their device is no more dangerous than its use by the ordinary method of inhalation.

REDUCTION OF BILATERAL DISLOCATION OF HIP

To the Editor:—Recognizing bilateral dislocation of the hips at 2 months of age, what is the accepted time for operation to reduce this condition? FREDERICK H. VON HOFE, M.D., East Orange, N. J.

ANSWER.—"The Early Treatment of Congenital Dislocation," by Prof. Vittorio Putti, Bologna, Italy, *Journal of Bone and Joint Surgery* for October, 1929, Vol. 11, No. 3, page 798, covers this subject.

In this article will be found the diagnosis of congenital dislocation of the hip. The diagnosis can be made with reasonable certainty in some cases at the age of one or two months; although it is usually not positive at this early age.

Putti has designed a method which consists of gradually forcing the limbs into a position of maximum abduction by means of apparatus suited to the age of the patient. He has cured twenty-four cases. In this article the apparatus is described and illustrations are given.

NUMBER OF EMPLOYEES NECESSARY FOR EMPLOYMENT OF PLANT PHYSICIAN

To the Editor:—What is the minimum size of plant that would justify having a plant doctor and/or a nurse, and a first aid room?

GEORGE SLADCZYK, M.D., Port Arthur, Texas.

ANSWER.—The number of employees in a plant is not the criterion on which the justification for the employment of a physician, nurse, or first aid attendant should be based. Safety and health work are important in all plants, regardless of the number of employees.

In referring to a recent list of small plants which provide safety and health service, it has been discovered that there are a number of instances of the employment of a part time physician in plants where the number of employees was under 500. In one instance, a part time physician was employed in a plant containing 107 employees. Another example showed that a full time physician was employed in a plant where 310 employees were engaged.

Any plant, no matter how small a number of employees are used, can arrange a definite part time safety and health service. The deciding factors are usually the interest of the management in providing protection for workmen, the character of the work done in the manufacturing plant (since some processes and materials are more hazardous than others) and, finally, the desirability of maintaining safe and healthy employees.

QUALITIES OF HONEY

To the Editor:—May I have your thought on the scientific aspects of this statement: "Chemically, honey is known as a monosaccharide, which is quickly and easily digested and assimilated for human use. It is important to remember that honey is taken into the blood stream soon after it reaches the upper alimentary tract. In this particular respect, scientists assure us that it is unlike ordinary cane sugar, which is a disaccharide. *A disaccharide is not absorbed into the blood stream until it reaches the lower coils of the alimentary canal.* In these lower coils the disaccharide substance is attacked by microbes and ferments which cause gaseous and other products, not always or pleasantly assimilated and taken care of. This explains why honey is really a quick and wholesome source of energy supply." M.D., Indianapolis.

ANSWER.—Honey consists chiefly of a mixture of sugars gathered from flowers and more or less changed by the honey bee. It is the only common food material that contains more fructose than dextrose. According to Browne (Bull. 110, U. S. Dept. Agric., Bureau of Chemistry), the average composition of honey is:

Water	17.70 per cent
Sucrose	1.90 per cent
Fructose (levulose)	40.50 per cent
Dextrose	34.48 per cent
Dextrin	1.51 per cent
Ash	0.81 per cent
Undetermined	3.71 per cent

In some instances, according to H. C. Sherman (Food Products, New York, Macmillan Company, 1924) genuine honey has been found to contain as high as 8 per cent of sucrose.

The principal constituents of honey, namely, fructose and dextrose, are monosaccharide sugars. These do not require any preliminary digestive change prior to their absorption from the alimentary tract. They are absorbed in the small intestine, little, if any, absorption taking place under ordinary conditions from the stomach.

Sucrose, of which cane sugar and beet sugar are familiar examples, is a disaccharide sugar. It is "inverted" prior to absorption; that is, it becomes hydrolyzed to form "invert sugar," a mixture of equal parts of dextrose and fructose (levulose). The latter are then readily absorbed into the portal circulation. The digestive hydrolysis or inversion of cane sugar (sucrose) begins in the stomach under the influence of "free" hydrochloric acid of the gastric juice at body temperature. The process is continued and completed through the action of the enzyme sucrase in the small intestine. This digestive production of invert sugar is easily accomplished, so that there is little occasion to assume, as the correspondent does, that there is great delay in the absorption of the digestive products of cane sugar. At any rate the difference between the locus of absorption of honey sugars and the invert sugars of digestion must be negligible; hence the comparative exposure to attack by microbiotic forms varies little and is scarcely noteworthy under ordinary conditions.

In metabolism, both honey sugars and the digestion products of cane sugar (which are chemically identical) are ready sources of energy. Preference for one or the other product must be based on flavor rather than on factors of physiologic availability or on readiness of fermentation in the gastro-intestinal tract. The annual per capita intake of sucrose in this country is about 110 pounds—the equivalent of nearly one fifth of the energy requirement estimated at from 2,700 to 3,000 calories a day.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Philadelphia, June 8, 1931. Denver, July 23, 1931. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago, Ill.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Philadelphia, June 6, 1931. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh, Pa.

ARKANSAS: Little Rock, May 4, 1931. Basic Science. Sec., Mr. Louis Gebauer, 1002 Donaghey Bldg., Little Rock, Ark. Homeopathic. Little Rock, May 12, 1931. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark. Regular. Little Rock, May 12-13, 1931. Sec., Dr. S. J. Allbright, Searcy, Ark. Eclectic. Little Rock, May 12, 1931. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark.

NEBRASKA: Omaha, May 5-6, 1931. Basic Science. Acting Sec., Mr. P. H. Bartholomew, Lincoln, Neb.

NEVADA: Carson City, May 4-6, 1931. Sec., Dr. Edward E. Hamer, Carson City, Nev.

OHIO: Columbus, June 2-5, 1931. Sec., Dr. H. M. Platter, Ohio State Savings Bldg., Columbus, Ohio.

WISCONSIN: Milwaukee, June 6, 1931. Basic Science. Sec., Prof. R. N. Bauer, 3414 W. Wisconsin Ave., Milwaukee, Wis.

WYOMING: Cheyenne, June 1, 1931. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne, Wyo.

LINCOLN CORRESPONDENCE INSTITUTE AND THE PRACTICE OF A "PEDIMEDICUS"

In an attempt to qualify individuals in practice as a "pedimedicus" whereby they can evade the chiropody provisions of various state laws, the Lincoln Correspondence Institute of Philadelphia was organized, Nov. 18, 1930, under the laws of New Jersey. A report from the National Better Business Bureau of New York reveals that this pseudoscientific mail order school is engaged in selling a course in foot correction, "by mechanical means." To those practicing this system the institute suggests the use of the title "pedimedicus."

The scope of the "profession" is outlined by the institute as including "the manipulation, exercising and training the muscular and ligamentary structure of the foot." The student "is taught to recognize cases of various foot troubles, and counsels as to shoes, arch supports, foot baths, foot exercises and many other things." It is further declared that "the pedimedicus uses strapping and padding of the feet." In fact, the course "tells *everything* about treating the feet."

A statement from the New Jersey department of state reports that the incorporators of the institute are W. S. Le Seur, M.D., St. Davids, Pa.; Fred Bailey, Haverford, Pa., and Michael Ostroff, Camden, N. J. The files of the American Medical Association contain no record of a W. S. Le Seur either trained in a medical school or licensed to practice medicine in this country. Le Seur says that he is "a physical educator" and "athletic director" and that he is not engaged in the "practice of medicine."

Abstracts from correspondence which the Better Business Bureau had with twelve representative state boards indicates that none of them recognize graduates of the Lincoln Correspondence Institute or similar institutions. When legislation prevents the incorporation of irregular schools, state boards will not be faced with the problem of recognition of poorly prepared practitioners. So long as cult schools and mail order institutions exist, quackery will flourish. State boards by the rigid enforcement of existing medical and chiropody legislation can discourage the inception of so-called professional schools and control illicit and dangerous practice.

California October Examination (Continued)

Dr. Charles B. Pinkham, Secretary of the Board of Medical Examiners of California, reports that 94 physicians were licensed through reciprocity with other states and 7 by the endorsement of credentials from August through December, 1930. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1916)	Oregon
University of Colorado School of Medicine	(1917), (1926), (1928), (1929, 3)	(1912)	Oregon
George Washington University Medical School	(1921) Utah	(1910)	Idaho
Emory University School of Medicine		(1929)	Georgia
Chicago College of Medicine and Surgery		(1909)	Illinois
Northwestern University Medical School	(1909), (1911) Illinois	(1892)	Colorado
Rush Medical College	(1892) Illinois	(1902) Minnesota, (1902)	Nebraska
University of Illinois College of Medicine	(1905, 2), (1906), (1916), (1917) Illinois	(1908)	Idaho
Indiana Univ. School of Med		(1926), (1927), (1928)	Indiana
Drake University College of Medicine		(1912)	Iowa
Sioux City College of Medicine		(1903)	Iowa
State University of Iowa College of Medicine	(1919), (1920) Iowa	(1910)	Washington
College of Physicians and Surgeons, Kansas City		(1900)	Kansas
University of Louisville School of Medicine	(1927), (1929) Kentucky	(1916)	Washington
Tulane University of Louisiana School of Medicine		(1924)	Arizona
University of Maryland School of Medicine		(1929)	Maryland
Harvard University Medical School		(1920)	Utah
Tufts College Medical School		(1917)	Mass.
Detroit College of Medicine and Surgery		(1907), (1911)	Michigan
University of Michigan Med. School		(1908), (1925), (1926)	Michigan
University of Minnesota Med. Sch.	(1924) Arizona, (1923), (1924), (1926) Minnesota	(1911) Nevada,	Iowa
Kansas City Hahnemann Medical College		(1913)	Kansas
St. Louis University School of Medicine	(1927) Ohio, (1917), (1929) Missouri	(1920)	Illinois
Washington University School of Medicine	(1919) S. Dakota, (1927) Minnesota	(1908)	Illinois
Creighton University School of Medicine		(1916), (1928)	Nebraska
University of Nebraska College of Medicine		(1924), (1925)	Nebraska
Bellevue Hospital Medical College		(1898)	New York
Cornell University Medical School		(1926)	New York
Fordham University School of Medicine		(1921)	New York
University and Bellevue Hosp. Med. College		(1926), (1927)	New York
University of Buffalo School of Medicine		(1923)	New York
Medical College of Ohio, Cincinnati		(1909)	Kentucky
Ohio-Miami Medical College		(1911)	Ohio
Western Reserve University School of Med		(1925), (1929)	Ohio
University of Cincinnati College of Medicine		(1928)	Ohio
University of Oklahoma School of Medicine		(1929)	Oklahoma
Univ. of Oregon Med. School		(1917), (1923), (1927), (1929)	Oregon
Jefferson Medical College		(1922)	Arizona
Medico-Chirurgical College of Philadelphia		(1914)	Penna.
University of Pennsylvania School of Medicine	(1926) New York	(1924)	Penna.
University of Tennessee College of Medicine		(1890)	New York
Vanderbilt University School of Medicine		(1913)	Texas
Baylor University College of Medicine		(1928)	Texas
University of Vermont College of Medicine		(1913)	Montana
University of Virginia Department of Medicine		(1917)	Virginia
Marquette University School of Medicine		(1913)	Wisconsin
McGill University Faculty of Medicine		(1922)	Michigan
University of Heidelberg Faculty of Medicine		(1919)	Minnesota
University of Budapest Faculty of Medicine	(1921) New York	(1920*)	Illinois
University of Naples Faculty of Medicine		(1927)	Colorado

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Yale University School of Medicine		(1929)	N. B. M. Ex.
Northwestern University Medical School		(1926)	N. B. M. Ex.
Rush Medical College		(1927)	N. B. M. Ex.
University of Illinois College of Medicine		(1929)	U. S. Navy
University of Oregon Medical School		(1928)	N. B. M. Ex.
Jefferson Medical College		(1905)	U. S. Army
University College of Medicine, Richmond		(1901)	U. S. Army

* Verification of graduation in process.

Book Notices

HANDBOOK OF PROTOZOOLOGY. By Richard Roksabro Kudo, D.Sc., Assistant Professor of Zoology, University of Illinois. Cloth. Price, $5.50. Pp. 451, with 175 illustrations. Springfield, Illinois: Charles C. Thomas, 1931.

This is the outcome of a course on the subject given at the University of Illinois. There are thirty-three chapters, of which the first three give a brief outline of the general subjects of morphology, physiology and reproduction, and the remaining thirty chapters comprise a systematic review of the taxonomy and morphology of the various groups of protozoa. The book closes with an appendix on collection, cultivation and general methods of observation. Throughout, the author has limited his treatment to zoological subjects and has not dealt in detail with subjects of interest to medicine. Most of the forms considered are necessarily free-living, and although the parasites of man receive somewhat fuller treatment than most others, no species is given more than a few lines of text. The book will be of great value to teaching or research biologists, and to workers in parasitology it will be useful as an orientation to the general subject of taxonomy. Even to beginning students in protozoology, however, it would seem unwise to present a subject with so little emphasis on the experimental side. Occasional errors may be noted, as when on page 287 the author includes under the hosts of *Plasmodium praecox* barn-yard fowls, duck, pigeon, crow and owl, evidently confusing the genus with *Haemoproteus*. The book is beautifully illustrated, and the subject matter is logically arranged.

EINFÜHRUNG IN DIE MEDIZIN. Von Dr. Med. Henry E. Sigerist, Professor an der Universität Leipzig. Paper. Price, 12.50 marks. Pp. 405. Leipzig: Georg Thieme, 1931.

This book is planned particularly for young men in their early years of medical education and also for those who are just entering into medical practice. It provides an historical background to the study of anatomy and physiology; it emphasizes the importance of the mind in relationship to disease; it then carries the young man from the consideration of the normal to the philosophy of the care of the sick; it presents briefly a study of symptoms of the disease as a whole and it associates this intimately with the great investigators who have contributed to our knowledge. The volume is essentially a call to the highest ideals in the practice of medicine. It shows the physician his relationship to his profession, to the public and to the state. Such a book serves to orient young men in a profession whose pursuit raises many questions in the mind. The book is a valuable guide and it has the special value associated with the fact that it is written by a leader in medicine of repute for his knowledge of medical history and his ability as a medical writer.

CHILDREN WHO RUN ON ALL FOURS AND OTHER ANIMAL-LIKE BEHAVIORS IN THE HUMAN CHILD. By Aleš Hrdlička, M.D., Sc.D., D.Sc., Curator, Division of Physical Anthropology, U. S. National Museum, Smithsonian Institution. Cloth. Price, $5. Pp. 418, with 27 illustrations. New York: McGraw-Hill Book Company, Inc., 1931.

Human babies are little animals. Some of them are more like little nonhuman animals than others. Professor Hrdlička is convinced that children who show, for a shorter or longer time, such reminiscent phenomena of an earlier stage as quadruped locomotion are not the feebleminded or feeble-bodied but the physically and mentally superiors. The first section of this book is devoted to descriptions of children who run on all fours and the analysis of the nature of this performance. The next chapters concern the mentality of the children, with such related phenomena as phobias, abnormal tastes, head banging and thumb sucking. The author then considers other animal-like manifestations, the problems of the colored children, strange postures and methods of locomotion and the causes of animal-like manifestations. The habit of walking on all fours appears to be more common in boys than in girls and in the first child of the family than in the others. The author concludes that just as the child before birth recapitulates, more or less, various phases of its ancestry, so the child after birth recapitulates and uses for a time various phases of its prehuman ancestral behavior.

LES MOUSTIQUES DE LA COCHINCHINE ET DU SUD-ANNAM. Par E. Borel, médecin commandant des troupes coloniales. Préface de E. Roubaud, professeur à l'Institut Pasteur de Paris. Paper. Price, 70 francs. Pp. 423, with 122 illustrations. Paris: Masson & Cie, 1930.

This monograph on the mosquitoes of Cochin China and South Annam by the late Dr. Emile Borel of the Pasteur Institute of Saïgon is a study of the mosquitoes collected over a period of three years, together with notes on their biology and on the diseases carried by them. Part I is devoted to a study of the geographic characteristics and the climatology of the region. In part II the mosquitoes are subjected to a detailed systematic study. There are descriptions of the characters of the adult males and females and of the larvae, accompanied by line drawings. Fourteen species of Anopheline and fifteen genera of Culicine mosquitoes are treated. By far the greatest amount of space is devoted to descriptions of the species. Numerous keys for identification are given. The drawings, particularly those of male terminalia, are in many cases lacking in exactness of detail. Part III deals with the epidemiology of the diseases malaria, dengue and filariasis in these countries. *Anopheles kochi* and *Anopheles maculatus* are thought to be the most important species concerned in the transmission of malaria. The prevalence of *Aedes aegypti* points toward it as the main vector of dengue. Dissections made on females of five species showed the presence of filaria only in the case of *Culex quinquefasciatus (fatigans)*. Of the 1,114 engorged females of this species dissected, 98 showed the presence of filariae. The parasites were not identified, although it was believed that they belonged either to the genus *Wuchereria* or the genus *Acanthocheilonema*.

LEGAL MEDICINE AND TOXICOLOGY. By Ralph W. Webster, M.D., Ph.D., Clinical Professor of Medicine (Medical Jurisprudence) in Rush Medical College, University of Chicago. Cloth. Price, $8.50. Pp. 862, with illustrations. Philadelphia: W. B. Saunders Company, 1930.

The untimely death of the distinguished author of this book emphasizes the importance of this contribution to forensic medicine. Dr. Webster's editing of the system prepared by Peterson and Haines indicated his special qualification for the production of a one volume work on this subject. The book will be found to be everything that the general medical reader may require in this field. The volume is presented in two parts. Under the heading of "Legal Medicine," the author discusses the rights of physicians and their obligations, identification, deaths from various causes, wounds and injuries, examination of blood stains, legal questions associated with birth, sex offenses and mental disorders. The section on "Toxicology" is a complete consideration of poisons with their properties and the medico-legal aspects of their use.

SOUVENIR CINCHONA TERCENTENARY CELEBRATION AND EXHIBITION AT THE WELLCOME HISTORICAL MEDICAL MUSEUM, 54, WIGMORE STREET, LONDON, W. 1. Cloth. Pp. 115, with illustrations. London: Wellcome Foundation, Ltd., 1930.

The year 1930 marked the three hundredth anniversary of the recognized use of cinchona by Europeans. To commemorate the event the Wellcome Historical Medical Museum prepared a special book containing a catalogue of the exhibits sent by various persons and interests to the Wellcome Museum. The volume is a complete guide to the history of cinchona and its use in medicine. It emphasizes again the living character of the history of medicine.

THERAPEUTICS, MATERIA MEDICA AND PHARMACY: THE SPECIAL THERAPEUTICS OF DISEASES AND SYMPTOMS, THE PHYSIOLOGICAL AND THERAPEUTICAL ACTIONS OF DRUGS, THE MODERN MATERIA MEDICA, OFFICIAL AND PRACTICAL PHARMACY, PRESCRIPTION WRITING, AND ANTIDOTAL AND ANTAGONISTIC TREATMENT OF POISONING. By Sam'l O. L. Potter, A.M., M.D., M.R.C.P. Revised by R. J. E. Scott, M.A., B.C.L., M.D. Fifteenth edition. Cloth. Price, $8.50. Pp. 997. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

This well known standard textbook has been revised and brought down to date by R. J. E. Scott. It is intended to serve as a compendium of information regarding both official and nonofficial drugs and preparations. Following introductory chapters of general definitions and discussion, drugs are taken up alphabetically with an exposition of their action and uses. This is followed by a brief chapter on pharmacy and prescription writing from the prescriber's standpoint. An alphabetical list of symptoms and diseases, in which their modification and treatment by medicine is concisely noted, occupies about a third of the volume, and an appendix on prescription Latin, antinarcotic regulations and prohibition regulations conclude the book.

L'ASPIRO-PHARE: CAPTEUR D'INSECTES À RAYONS ULTRA-VIOLETS: Brevets Georges Gourdon. S. à r. l. Application des rayons u-v à la destruction des insectes nuisibles. Paper. Pp. 11, with 2 illustrations. Mulhouse: L'aspiro-phare, [n. d.].

An apparatus is described that utilizes ultraviolet rays as an attrahent for winged insects. It is asserted that ultraviolet radiation is much more effective in attracting insects than the ordinary electric light. The apparatus consists essentially of a mercury vapor lamp of about 3,500 candle power mounted above a basin of water 1.1 meters in diameter. An aspirator driven by an electric motor connects with the base of the lamp and draws the stunned insects into a fabric bag. The basin of water traps those not drawn in by the aspirator. A high degree of efficiency in disposing of various moths, beetles, flies, ants, winged aphids and mosquitoes is claimed for the apparatus.

INTRODUCTION TO MEDICAL BIOMETRY AND STATISTICS. By Raymond Pearl, Professor of Biology in the School of Hygiene and Public Health and in the Medical School, the Johns Hopkins University. Second edition. Cloth. Price, $5.50. Pp. 459, with 92 illustrations. Philadelphia: W. B. Saunders Company, 1930.

In this edition, the author has rearranged his material and added some new discussions of value. The book will be found exceedingly practical even to those who seldom attempt to prepare manuscripts evaluating scientific evidence. A proper knowledge of statistics is an exceedingly valuable aid in diagnosis; an understanding of the simple points set forth by Professor Pearl in an entertaining manner would prevent the reception by editors of many articles which seem to their authors to present facts of practical importance, whereas they merely present a coincidence that might have been expected. Some of the chapters of the book are understandable only by physicians who are well grounded in mathematics, but at least five of the chapters may be read to practical advantage by every intelligent reader.

RADIOLOGISCHE PRAKTIKA. Herausgegeben von W. Alwens, Fr. Dessauer, usw. Band XIII, Teil 2: Normale Anatomie des Kopfes im Röntgenbild. Von Universitäts-Assistent Dr. Karl Goldhamer, Leiter des Röntgenlaboratoriums an der I. anatomischen Lehrkanzel (Prof. Tandler) in Wien. Cloth. Price, 120 marks. Pp. 44, with 114 illustrations. Leipzig: Georg Thieme, 1931.

This section contains forty-four plates with explanatory tables and legends. As in the first section, all designations and descriptions are given in German, English, French and Spanish. The plates are exceedingly beautiful and to realize the wealth of information they convey it is necessary to see them. This work should be of inestimable value to head surgeons, rhinologists and otolaryngologists as well as to the oral surgeons. Every plate has a cover of cellophane on which are traced in red the details of the films together with numbers corresponding to those in the table of legends on the opposite page. From both the scientific and the esthetic aspect this work cannot be too highly commended.

RACE MIXTURE: STUDIES IN INTERMARRIAGE AND MISCEGENATION. By Edward Byron Reuter. Cloth. Price, $2.50. Pp. 224. New York: McGraw-Hill Book Company, 1931.

This volume includes a series of papers published in various sociological periodicals and concerned largely with the question of intermarriage of whites and Negroes. The thesis held seems to be that race mixture tends to a higher type. The author is convinced that the number of mulattoes who pass over into the white race classification will increase. He discusses the sex distribution in the mulatto, the legal relations of intermarriage, the relationship of color to achievement, the superiority of the mulatto and his changing status. He points out that the mulattoes, composing at present less than 20 per cent of the Negro population, have produced more than 80 per cent of the superior men of the race. The final chapter concerns the psychology of the hybrid and the evidence that the only hope of happiness for such persons is complete identification with a social group and limitation of activities to that group.

DOCTOR SEROCOLD: A PAGE FROM HIS DAY-BOOK. By Helen Ashton. Cloth. Price, $2.50. Pp. 305. Garden City: Doubleday, Doran & Company, Inc., 1930.

This novel, selected by one of the book clubs for distribution, has attracted wide general attention. It is reported that the author wanted to prove to her husband that a novel could be made of twenty-four hours in the life of a physician. Of particular interest is the manner in which the physical condition of the physician himself is reflected in his point of view and in his relationships with his patients, notwithstanding the fact that he is constantly motivated by the desire to be perfectly scientific and objective.

SEEING SPAIN AND MOROCCO. By E. M. Newman. Newman Travel-talks. Cloth. Price, $5. Pp. 383, with illustrations. New York: Funk & Wagnalls Company, 1930.

Dr. Newman's repute as a lecturer on travel requires no emphasis. He has the ability to induce interest in his descriptions and the book is supplemented by more than 300 reproductions of remarkable photographs. The book will be found of interest by any one who contemplates a tour through Spain, and it will perhaps substitute for the actual trip to those who are unable to venture a journey.

HANDBUCH DER MIKROSKOPISCHEN ANATOMIE DES MENSCHEN. Herausgegeben von Wilhelm v. Möllendorff. Band II: Die Gewebe. Teil 2: Stützgewebe. Knochengewebe. Skeletsystem. Bearbeitet von H. Petersen, J. Schaffer und F. Weidenreich. Paper. Price, 168 marks. Pp. 699, with 521 illustrations. Berlin: Julius Springer, 1930.

The problems of certain supporting tissues are presented with Schaffer's characteristic breadth of view and minuteness of detail. The notochord is shown to be the most primitive of such tissues and with it are considered others, such as fat, which also owe their resilience to cell turgor. The various types of cartilage and chondroid tissues are likewise discussed from histologic, cytologic, developmental, metabolic, chemical and historical aspects. The section on bone, by Weidenreich (the teeth are not included), is almost as comprehensive except for the cytology. Bone is classified on the basis of the fibrous structure of the ground substance. Heterotopic bone formation is regarded as due primarily to local metabolic conditions that change the activities of the resident cells. The third section covers the architectonics of bone in general and of certain bones in particular. There is also an excellent description of the histology of the joints and of the relations of bones, tendons and ligaments. The first two sections have practically exhaustive bibliographies and there is a good index.

THE NEW GENERATION: THE INTIMATE PROBLEMS OF MODERN PARENTS AND CHILDREN. Edited by V. F. Calverton and Samuel D. Schmalhausen. With an introduction by Bertrand Russell. Cloth. Price, $5. Pp. 717, with illustrations. New York: Macaulay Company, 1930.

This is the second presentation by these editors of a collection of essays dealing with the changing point of view relative to morals, particularly as they affect the marital state. The contributions to this volume include all of those names that have become prominent in the field of psychology and sociology. The one question that arises in the mind of the critic is whether or not it is wise to distribute for general reading to a popular audience such discussions of sex perversion as this volume makes available. The essays are all of interest, although many of the authors are unnecessarily verbose.

A TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John Glaister, M.D., D.P.H., F.R.S.E., Professor of Forensic Medicine in the University of Glasgow. In collaboration with John Glaister, Jun., M.B., Ch.B., M.D., Barrister-at-Law of the Inner Temple, London. Fifth edition. Cloth. Price, $8.50. Pp. 954, with 139 illustrations. New York: William Wood & Company, 1931.

This book is planned primarily for British readers. It is divided into two parts, one dealing with legal medicine and the other with toxicology. Because of the small type used and the condensation of the material, the book is the most complete one-volume work in this field. It contains numerous case reports, tabulated data and a vast amount of evidence to support the author's instruction. The numerous editions and constant improvements make it one of the most useful volumes available in this field.

Miscellany

THE QUACK IN THE MIDDLE AGES

MATHILDE BILLIOD, M.A.
CLEVELAND

The word *quack*, as it exists today, is an abbreviation for the earlier form *quacksalver*, which continued in use until Wickerly (1640-1716) shortened it into *quack*.

In tracing the meaning of the word it is necessary to consider separately the derivations[1] of its two component parts: (1) *quack;* (2) *salver.*

1. For the word *quack* there are three sources:
   1. English:
      (*a*) *quack*, to talk pretentiously about a thing or to make a noisy boastful outcry about a thing (this the general sense).[1]
      (*b*) to play the quack, to pretend to medical knowledge or skill, or to dabble ignorantly in medicine.
   2. German:
      (*a*) Old German, *quack*, underlying sense, imitative cry of a duck, goose or frog.
      (*b*) Middle High German, *quacken, quackern*, a babbling noisy outcry about a thing.
      (*c*) Modern High German, *quacken, quackern* or *quatschern*, das Gequatscher der Weiber.
   3. Dutch:
      (*a*) *quack*, first imitative, *quakken;* later, *quack.*
      (*b*) *quackzalber*, one who applies his salve, remedies, in a trifling way.

The application is first general, then narrowed down and attached chiefly to the medical profession. Its meaning, first, imitative of the cry of a duck, came to be the ignorant chatter and boasting of medical skill and cure-alls.

2. For the second component part, *salver*,[2] there are the following derivations:
   1. Latin:
      (*a*) *saluare*, to save, which comes into French as *saluer*, to save, heal.
      (*b*) *salutare*, to wish health to any one.
      (*c*) *salut*, stem of *salus*, health, came into French as *salue.*
      (*d*) *salve*, hail.
   2. French:
      (*a*) *saluer*, to greet, to wish health to.
      (*b*) *salueur*, a bringer of health (in religious sense, saviour).
   3. By confusion:
      (*a*) u in *saluer* becomes v in coming over into the English; thus: saluer, salver, saver, save.
      (*b*) salue, salve.
   4. Again by confusion, the meanings of the two words are interchanged early in their history: *salue* comes to mean the saving, the rescuing, or the saving force, and vice versa; also, greeting; *salue* written *salve*[3] carries the same meaning as when written *salue.*

1. Palmer and Henley: Dictionary of Slang and Colloquial English. Murray, J. A.: Etymological and Historical Dictionary of the English Language. Weekley: Etymological Dictionary of Modern English.

2. The use of u for v and of v for u occurs frequently in Chaucer: 1374, "by my saucion" for "salvation"; 1384, in two successive sentences Chaucer uses: sauacion and savacion; 1400, the Roman saluateur "in manner saluatour of the people"; later, "salvatours."

3. Paracelsus was already active in some of these directions at Basel (1528-1529) when "he uncovered certain business practices in connection with the apothecaries and burned the works of Avicenna" (er die geschäftlichen Praktiken im Bunde mit den Apothekern aufdeckte und Avecenna verbrannte), Hollander, E.: Anekdoten der medizinischen Weltgeschichte, p. 55.

Thus, *saluer* written *salver*, by confusion, means savior, rescuer, healer; and *quacksalver* a quack-healer.

5. The Roman *saluatour* became salvour, salvor, saver, in the sense of healer.
In a religious sense (1440): "a saluer of our sores (sins)." In Calvin's sermon: "We are not worthy that God should salve our sins." "There still is "the salve light" (a candle lighted during the singing of the salue (hail); also, "salve Regina."

Thus, *quacksalver* early came to mean one who is a saver, a rescuer, a healer who makes noisy pretentions to medical skill not based on renal knowledge; a boaster of wonderful cure-all remedies.

According to reliable records, the use of the word *quacksalver* dates back to the half of the sixteenth century; before that, the terms "Empirick" and "Pseudomedick" were used to denote the quack. For example:

Gasson, 1579, in Scholars Abuses, "a quacksalver's budget of filthy receites."

Jonson, 1605, Volpone II, "They are Quacksalvers, Fellowes that live by senting oyles and drugs."

Minshieu, 1617, "Doctor Quacksalver."

Rowland, 1657, Manset's Theater, "One accidental rash cure makes a Quacksalver a great physician."

Rhaenodeus (Tomlinson's, 1657, however, still uses "Empirick" and "Pseudomedick" (pp. 168, 595, 628).

WHO WERE THE QUACKSALVERS DURING THE MIDDLE AGES?

Although the term *quacksalvers* (later, quack), attached itself to the medical profession in particular, the quackdoctor was not the only quack abroad in the land; there were quack-theologians, quack-apothecaries, quack-astrologers, quack-bills, and so on. As evidence of the fact that the same state of affairs extended to the British Isles, an address by James Younge, delivered before the College of Physicians and the Society of Surgeons (London, Dec. 12, 1698), entitled the "Quack-Astrologer," has been preserved.

Religion, politics, astrology and medicine were so closely allied in those days that both religion and astrology entered into the practice of medicine, as they did into politics. Astrologers had been in bad repute since the days of Agrippa, not as scientists but as prognosticators, because their prognostications, which sometimes foretold the downfall of governments, had been legislated against until prognostications were made a capital crime by Justinian. In his preface to the Quack-Astrologer, James Younge says:

"We have lately gained a new Law to secure Apothecaries [3] from being Scavengers: Is there not more need of one to keep shoemakers from turning Doctors, and Moon-Prophets?"

"Why then should Impudent, Ignorant Quacks and Empiricks (Smiths, Weavers, Cobblers, Draymen, Women, etc.) boldly and accustomably take upon them great cures and things of great difficulty. In the which they partly use Sorcery and Witchcraft, partly apply such medicines unto the disease as be very noyous and nothing meet therefore; to the high displeasure of GOD and Great Infamy to the Faculty, and the grievous Hurt, Damage and Destruction of many of the King's Leige people. . . ."

These empiricks were held to be the mortal enemies of the regular practitioner:

"For [continues Younge] besides the common Injury to Man, Empiricks have a particular spight at you (College of Physicians). . . . The Astrological Quacks do not only Reproach, Libel, and Rail at you, but Usurp your Office, contrary to Law, taking upon them to reform the settled Rules, Methods, and Medicaments, and give encouragement to all sorts of Quacksalvers. So that the Faculty is in danger of being overthrown and the Nation subjected to all inconveniences. . . ."

On the continent, Paracelsus (1493-1543) was by some termed the Archquack; in England, Lilly [4] and Culpeper [5] (1616-1654) had been regarded as the Arch-impostors. "These two Arch-quacks," warns Younge "had in one breath sentenced the whole college of your most learned Predecessors, and King James, their Patron, to the Devil."

"Lilly (1602-1681) had issued a prognostication predicting the Downfall of the Mitre and the Coronet and the establishment of a Democracy in England. Therefore statutes have been enacted forbidding the publications foretelling a change in governmental affairs." Those who did so were considered traitors, as "such things were instrumental in stirring up Rebellions." These astrologers were also in the habit of publishing almanacs accompanied by astrological signs for each day in the year (still continued in our day) and "fine receites for the cure of even incurable diseases in order to hook in customers," says Younge, "for Almanacs are Oracles to the Vulgar."

The culprit attacked by Younge was one of his contemporaries, described by him as "the fattest of the Herd and a Quack-Astrologer in your House (College of Physicians)." This quack-astrologer was so like Sidrophel Houdibras [6] that he treats him under that character. This fellow had accused Younge of having stolen his "Notions of Ol Tereb" from Crato, and when called to task by Younge had refused to confess his error. Younge then appealed to the College of Physicians to annihilate such nuisances, as he considered it the duty of this body to exterminate this pernicious sect.

Medicolegal

Refusal to Submit to a Major Operation

(Baltimore & Carolina S. S. Co. v. Norton, 40 Fed. (2d) 271)

Anderson, 55 years of age, an employee of the Baltimore & Carolina Steamship Company, sustained in the course of his employment a compression fracture of the tenth and twelfth dorsal vertebrae. Under the Longshoremen's and Harbor Workers' Compensation Act, the deputy commissioner, Norton, awarded compensation for total disability. The steamship company and its insurer thereupon instituted proceedings in the Federal District Court, Eastern District, Pennsylvania, to set aside the award.

The steamship company contended that the award should not have been made, because Anderson refused to submit to an operation which, a medical witness testified, would alleviate his condition. The proposed operation was a major one, consisting of an autogenous bone graft from the patient's leg to his back, to "fix" the fractured area. Five vertebrae would be involved in the proposed operation. The physician who advised the operation testified that he had performed fourteen similar operations during the preceding year and had had "fourteen good results," adding: "There is nothing, really, to fear. . . . It is a surgical procedure that in good hands is perfectly safe."

But, said the district court, there is nothing in the Longshoremen's and Harbor Workers' Compensation Act that authorizes the withholding of compensation until the employee has submitted to an operation designed to remove his disability. The court called attention to the fact that the operation proposed in this case was not a slight adjustment or minor operation. Nor was it the case of the refusal of an employee to submit to ordinary treatment, nor of voluntary exposure to infection or other causes of aggravation. In the latter cases, and perhaps in the

4. William Lilly, born in 1602 at Deseworth, Leicestershire, England, died in 1681, astrologer, read Ars-Natoria, which taught him the doctrine of the magical circle and the methods of invoking spirits.

5. Nicholas Culpeper, 1616-1654, London, England, writer and astrologer, knew Latin and Greek, studied medical writers, was apprenticed to an apothecary, and in 1640 set himself up as astrologer and physician in Red Lion Street, Spitale Fields, England.

6. Quack-Astrologer, Sidrophel Vapulans; or the (J. Chapman) Quack-Astologer tossed in a Blanket by the Author of Medicaster Medicatus; printed by Jno. Nutt Hall, 1699.

former, continued the court, it might be argued that not the original injury, but the refusal to take precautions or to submit to ordinary treatment, was the real proximate cause of the condition. Only one medical witness was called in this case, and his testimony was definite, positive and undisputed. There are, however, said the court, many operations as to which medical opinion is divided. In some cases, procedure concededly in its experimental stages has ardent supporters in the medical profession who are quite sincere in their belief as to its infallibility. If the rule were to be adopted that employees could be compelled to submit to major operations as serious as the one under consideration, as viewed by the court, cases might and probably would arise in which there would be a conflict of testimony as to the advisability of the operation and its probable effect on the employee. Decision of such questions would have to be made by the court. It would be dangerous and foolhardy, thought the district court, for any judge to assume such responsibility where a human life might be endangered by his decision.

The compensation awarded by the deputy commissioner was reduced, for reasons not here pertinent, and the order in all other particulars was affirmed.

Harrison Narcotic Act: Entrapment of Physician.—The gist of the defendant's allegation, when he seeks to escape punishment on the ground that he was entrapped, is that an agent, for the purpose of the prosecution, manufactured an offense against the law and then incited the defendant against his will to commit that offense. When the criminal intent originated in the mind of the defendant, however, the fact that the officers of the government used decoys to furnish opportunity for or to aid the defendant in the commission of a crime, in order successfully to prosecute him, is no defense. A physician charged with a violation of the Harrison Narcotic Act cannot exculpate himself by pleading that he was entrapped when the evidence shows that he had been selling narcotics to addicts, that when opportunity was afforded he was ready, willing and able illegally to sell narcotics, and that he was not incited nor persuaded to commit the offense but aided and abetted the government agent in surreptitiously obtaining the drug.—*Swallum v. United States, 39 Fed. (2d) 390.*

Malpractice: Affirmative Proof of Negligence Necessary.—The doctrine of res ipsa loquitur does not apply in a malpractice case. Before a patient can secure judgment, he must show by affirmative evidence that the physician was unskilful or negligent and that this want of skill or care resulted in injury to the patient. If either element is lacking in the proof, no case has been presented for the consideration of the jury. A physician is not a warrantor of cure. If the maxim res ipsa loquitur were applicable and a failure to cure were held to be evidence of negligence on the part of the physician or surgeon causing the bad result, few would be courageous enough to practice the healing art, for they would have to assume financial liability for nearly all the "ills that flesh is heir to." *Ewing* v. *Goode,* 78 Fed. 442. The fact, therefore, that a patient suffers paralysis of the right side of his face following a mastoidectomy raises no presumption that the operating surgeon was negligent. —*Schoening v. Smith (N. D.), 231 N. W. 278.*

Insurance, Accident: Death from Sunstroke.—Where the insured dies from sunstroke, the exposure being traceable not to any mishap or misadventure but to the insured's going exactly when, where and as he intended to go, the beneficiary cannot recover under a clause in an insurance policy providing double indemnity "upon receipt of due proof that the death of the insured resulted directly and independently of all other causes from bodily injury effected solely through external, violent and accidental cause."—*Nickman v. New York Life Ins. Co., 39 Fed. (2d) 763.*

Evidence: Effect of Hysteria on Confession.—Evidence tending to establish that the defendant was in an hysterical condition and perhaps not in the full possession of his faculties when he confessed his guilt does not affect the admissibility in evidence of his confession, but it would be evidence to be considered by the jury in determining the weight or effect to be given to the confession.—*People v. Lehew (Calif.), 287 Pac. 337.*

Society Proceedings

COMING MEETINGS

American Medical Association, Philadelphia, June 8-12. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association for the Study of the Feeble-Minded, New York, May 25-28. Dr. Howard W. Potter, 722 West 168th Street, New York, Secretary.

American Bronchoscopic Society, St. Louis, June 6. Dr. Louis H. Clerf, 128 South 10th Street, Philadelphia, Secretary.

American Climatological and Clinical Association, Hot Springs, Va., May 7-9. Dr. A. K. Stone, Auburn Street, Framingham Center, Mass., Secretary.

American Dermatological Association, Toronto, Canada, June 15-17. Dr. William H. Guy, 500 Penn Avenue, Pittsburgh, Secretary.

American Gastro-Enterological Association, Atlantic City, May 4-5. Dr. Charles G. Lucas, 307 West Broadway, Louisville, Secretary.

American Gynecological Society, Hot Springs, Va., May 18-20. Dr. Floyd E. Keene, 133 South 36th Street, Philadelphia, Secretary.

American Heart Association, Philadelphia, June 9. Dr. Irl C. Riggin, 450 Seventh Avenue, New York, Executive Secretary.

American Laryngological Association, Atlantic City, June 15-17. Dr. George M. Coates, 1721 Pine Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, St. Louis, June 3-5. Dr. R. L. Loughran, 33 East 63d Street, New York, Sec'y.

American Neurological Association, Boston, May 27-29. Dr. Henry A. Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Asheville, N. C., June 1-3. Dr. Emory Hill, 501 East Franklin Street, Richmond, Va., Secretary.

American Otological Society, Briarcliff, New York, June 17-19. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.

American Physical Therapy Association, Philadelphia, June 8-9. Dr. C. C. Vinton, 585 West End Avenue, New York, Secretary.

American Proctologic Society, Philadelphia, June 7-9. Dr. Curtice Rosser, Medical Arts Building, Dallas, Texas, Secretary.

American Psychiatric Association, Toronto, Canada, June 1-5. Dr. Clarence O. Cheney, Hudson River State Hospital, Poughkeepsie, N. Y., Secretary.

American Society for Clinical Investigation, Atlantic City, May 4. Dr. Cyrus C. Sturgis, Simpson Memorial Institute, Ann Arbor, Mich., Sec'y.

American Society of Clinical Pathologists, Philadelphia, June 7-9. Dr. A. S. Giordano, 604 North Main Street, South Bend, Ind., Secretary.

American Therapeutic Society, Atlantic City, June 5-6. Dr. Grafton Tyler Brown, 1801 I Street, N. W., Washington, D. C., Secretary.

American Urological Association, Memphis, Tenn., May 18-22. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Arizona State Medical Association, Nogales, May 7-9. Dr. D. F. Harbridge, Goodrich Building, Phoenix, Secretary.

Association for the Study of Internal Secretions, Philadelphia, June 8-9. Dr. F. M. Pottenger, Monrovia, Calif., Secretary.

Association of American Physicians, Atlantic City, May 5-6. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, San Francisco, April 27-30. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.

Central Tri-State Medical Society, Ashland, Ky., April 30. Dr. J. S. Klumpp, 1139 Fourth Avenue, Huntington, W. Va., Secretary.

Conference of State and Provincial Health Authorities of North America, Washington, D. C., April 29-30. Dr. A. J. Chesley, State Board of Health, St. Paul, Minnesota, Secretary.

Connecticut State Medical Society, Bridgeport, May 20-21. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

District of Columbia, Medical Society of, Washington, May 6. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, Secretary.

Florida Medical Association, Orlando, May 11-12. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, May 12-15. Dr. Allen H. Bunce, 139 Forrest Avenue, N. E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Wailuku, Maui, May 1-2. Dr. F. J. Pinkerton, Young Building, Honolulu, Secretary.

Illinois State Medical Society, East St. Louis, May 5-7. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 13-16. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Manhattan, May 5-7. Dr. J. F. Hassig, Huron Building, Kansas City, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 28-30. Dr. John T. King, Jr., 1211 Cathedral Street, Baltimore, Secretary.

Massachusetts Medical Society, Boston, June 8-10. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.

Medical Library Association, New Orleans, May 19-21. Miss Sue Biethan, General Library, University of Michigan, Ann Arbor, Mich., Secretary.

Minnesota State Medical Association, Minneapolis, May 4-6. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Mississippi State Medical Association, Jackson, May 12-14. Dr. T. M. Dye, Clarksdale, Secretary.

Missouri State Medical Association, Joplin, May 11-14. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.

National Tuberculosis Association, Syracuse, N. Y., May 11-14. Dr. Charles J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

Nebraska State Medical Association, Omaha, May 12-14. Dr. R. B. Adams, Center McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 19-20. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

New Jersey, Medical Society of, Asbury Park, June 3-5. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New Mexico Medical Society, Albuquerque, May 20-22. Dr. L. B. Cohenour, 219 West Central Avenue, Albuquerque, Secretary.

New York, Medical Society of the State of, Syracuse, June 1-3. Dr. Daniel S. Dougherty, 2 East 103d Street, New York, Secretary.

North Dakota State Medical Association, Aberdeen, S. D., June 2-4. Dr. Albert W. Skelsey, 18 Broadway, Fargo, Secretary.

Ohio State Medical Association, Toledo, May 12-13. Mr. Don K. Martin, 131 East State Street, Columbus, Secretary.

Oklahoma State Medical Association, Oklahoma City, May 11-13. Dr. C. A. Thompson, Memorial Station, Muskogee, Secretary.
Rhode Island Medical Society, Providence, June 4. Dr. J. W. Leech, 369 Broad Street, Providence, Secretary.
Society for the Study of Asthma and Allied Conditions, Atlantic City, May 2. Dr. W. C. Spain, 116 East 53d Street, New York, Secretary.
South Carolina Medical Association, Greenville, May 5-7. Dr. E. A. Hines, Seneca, Secretary.
South Dakota State Medical Association, Aberdeen, June 2-4. Dr. John F. D. Cook, Langford, Secretary.
Texas, State Medical Association of, Beaumont, May 5-7. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.
West Virginia State Medical Association, Clarksburg, May 19-21. Mr. J. W. Savage, 303 Professional Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal Diseases of Children, Chicago

41: 225-484 (Feb.) 1931

*Is Familial Jaundice of New-Born Infants Erythroblastosis? Two Cases. W. L. Buhrman and H. N. Sanford, Chicago.—p. 225.
*Ossification: Callus Formation and Calcification. I. N. Kugelmass, New York, and R. N. Berg, Portland, Ore.—p. 236.
*Factors Involved in Combating "Hunger Strike" in Children. W. P. Lucas and H. B. Pryor, San Francisco.—p. 249.
*Congenital Intestinal Atresia. C. H. Webb and O. H. Wangensteen, Minneapolis.—p. 262.
*Streptococci Isolated from Excised Tonsils and Posttonsillectomy Blood Cultures. F. H. Bartlett and J. S. Pratt, New York.—p. 285.
*Influence of Excessive Milk Feeding on Gastric Motility: Relation to Chronic Anorexia. W. J. Siemsen, Chicago.—p. 291.
*Malnutrition in Children: Standardization of Dietary. L. C. Rosenberg, Newark, N. J.—p. 303.
*Clinical and Roentgenologic Manifestations of Scurvy in Seven Year Old Child. J. I. Hartman and E. Friedman, Cleveland.—p. 337.
*Acute Polymyositis. M. H. Bass and B. S. Denzer, New York.—p. 344.
*Mongolism in One of Twins. J. I. Waring, Charleston, S. C.—p. 351.
*Acute Phosphorus Poisoning: Case Due to Ingestion of Fireworks. E. M. Humphreys and B. Halpert, Chicago.—p. 354.
Tip for Gastroduodenal Tube Designed for Nasal Passage in Infants and Children. T. G. Klumpp, Boston.—p. 360.
*Progress in Pediatrics: Correlation of Roentgenographic and Pathologic Aspects of Congenital Osseous Syphilis. S. McLean, New York.—p. 363.

Familial Jaundice of New-Born Infants.—Two cases of fatal jaundice in new-born infants are reported by Buhrman and Sanford. Both cases gave a familial history of jaundice at birth. The clinical picture was one of familial jaundice with deep progressive icterus, enlarged liver and spleen, bile pigments in the urine and an indirect van den Bergh reaction. Both cases were characterized by an intense anemia with extremely numerous nucleated erythrocytes. In one case the time of bleeding was greatly increased and there was a reduction in the blood plates. Both patients died, and necropsy showed erythropoiesis, blood-forming islands in the liver and hyperplasia of the bone marrow.

Ossification: Callus Formation and Calcification.—Kugelmass and Berg studied the relation between callus formation and the amount and rate of calcification in rabbits with experimentally induced fractures. The greater the local formation of fibrous tissue, the greater was the amount and degree of calcification, all other conditions remaining the same. The blood calcium tends to be higher and the phosphate lower in the course of normal bone repair, and the more rapid the rate of calcification the more marked is this alteration in the calcium and phosphate content of the blood. Injection of an alkaline solution of trypsin, at the site of fracture, to produce fibrous dissolution, markedly retarded the union of bones in comparison with that in the control series. Injection of a solution of tissue fibrinogen in animals at the site of fracture, to stimulate increased callus formation, markedly accelerated the union of bones in comparison with that in the control series. The maintenance of animals with experimentally induced fractures on a diet high in protein, to increase the blood clotting factors, produced no local effect in bone repair as compared with the control series. Ossification is a local transformation of fibrous tissue into bone, the constituents of which are derived from the blood. Bone repair is a local rather than a systemic process, and union may therefore be induced or accelerated by local therapeutic measures.

Combating "Hunger Strike" in Children.—Body measurements made by Lucas and Pryor established the fact that 82 per cent of 110 children complaining of anorexia had the linear type of build. Obstinate constipation had a high correlation with poor nutrition in the linear type in this series. Fatigue and irritability were characteristic of the most poorly nourished children. High rates of basal metabolism accompany and possibly explain the nervous type of overactivity noted in many children of the linear type. Diets high in fat content commonly fed to underweight children are contraindicated for subjects of the linear type. Children of the linear type should be given diets with a low fat content. The substitution of a quart of fruit juices for the quart of milk a day usually prescribed has a stimulating effect on the appetite. A diet of low residue successfully combats persistent constipation associated with mild distention of the colon.

Congenital Intestinal Atresia.—Webb and Wangensteen add seventeen additional cases of congenital atresia of the intestine to those already reported in the literature. Two of these came under their observation. Correct preoperative recognition of the condition was made, and both patients were submitted to operation, with, however, a fatal issue. By ballooning the distal collapsed segment by the injection of air through a hypodermic needle, the surgeon converted a seemingly impossible intestinal suture in one case into an easy anastomosis. The infant died of parenchymatous hemorrhage in the wound, as disclosed by postmortem examination; the anastomosis was satisfactory and was found to be air and water tight. The importance of the visualization of gaseous shadows and mirrors of fluid in the recognition of the condition on roentgen examination of the abdomen is pointed out. Although the oral and rectal administration of barium in most cases of acute intestinal obstruction is to be deliberately omitted in intestinal atresia, the procedure affords information as to the location of the obstruction and helps to decide whether or not the atresia is multiple. Nine cases of infants who survived operation are compiled from the literature; in each instance an anastomotic procedure was performed. No instance of recovery following enterostomy has occurred.

Streptococci from Excised Tonsils and Posttonsillectomy Blood Cultures.—Forty-three per cent of the streptococci isolated by Bartlett and Pratt from the interior surface of excised tonsils were *S. pyogenes*, 29 per cent *S. infrequens*, and 14 per cent *S. anginosus*. The beta streptococci *S. mitis*, *S. ignavus* and *S. fecalis* constituted less than 1 per cent of all isolations. *Bacillus fusiformis* was present in 36 per cent of all cases. Sixty-four blood cultures were taken two hours after tonsillectomy. Streptococci were present in 6 per cent of these cultures. Mixed growth of streptococci and staphylococci, diphtheroid bacilli and a gram-negative bacillus were also found. In one case two strains of streptococcus that had not been found in the tonsil appeared in the blood.

Influence of Excessive Milk Feeding on Gastric Motility.—According to Siemsen, excessive milk feeding over a short period has little or no influence on gastric motility as recorded by the graphic method. Continued over a short period, excessive milk feeding does not have an unfavorable influence on appetite.

Malnutrition in Children.—Two groups of underweight children, each consisting of twenty-five subjects, were selected by Rosenberg and matched according to age, height, weight and sex. One was put on a special dietary (experimental) and the other on a representative American dietary (control), and the progress of one group was compared with that of the other at the end of a period of six months. The experimental dietary consisted of a quart of certified milk daily, a variety of nuts,

whole grain cereal products three times a day and fresh fruits, and vegetables twice a day, meat and eggs being excluded. It is obvious that there was a preponderance of basic over acid-forming elements. The increase in weight proved the experimental diet superior from the standpoint of rapidity, as well as of permanence, of results. The increase in weight at the end of the six months period was 32 per cent greater and the increase in height 24 per cent greater in the experimental group than in the control group. The more extensive anthropometric data established the validity of the results in the study of the weight gains, while further technical treatment of these data in relation to the girths of arm and calf and the subcutaneous tissue over the biceps corroborated the superiority of the experimental dietary. The results proved the experimental dietary to have been superior for girls to a greater extent than for boys. It is likely that psychic factors played an important part in the production of this sex difference. The studies of the blood showed no difference in progress for the two groups. The urinalyses indicated a much lower acidity for the experimental group than for the control group. The psychometric studies and the roentgen examination of the bones were not conclusive. The stools of the two groups showed a decided contrast in physical appearance, with a diminution in the total number of bacteria in the stools of the experimental group.

Scurvy in Seven Year Old Child.—A case of scurvy in a child of 7 years, with complete serial roentgenograms, is presented by Hartman and Friedman. The case is interesting because of the unusual age of the patient and the absence of the most typical roentgenologic changes seen in infantile scurvy, the Gerüstmarkzone and the Trümmerfeldzone.

Acute Polymyositis.—A case of polymyositis in a child is reported by Bass and Denzer. Although the course of the disease was peculiarly acute, nevertheless the clinical features were those described in the chronic forms under the title dermatomyositis—exquisite tenderness and also involvement of the skin with doughy swelling confined to the middle of the extremities. Necropsy indicated that the essential pathologic development in this case was sepsis with localization of the organism chiefly in the muscles.

Mongolism in One of Twins.—A case of mongolism in one of dizygotic twins reported by Waring supports the view that the condition is the result of a defect in germ plasm and not due to the general physical condition of the parents.

Phosphorus Poisoning.—Humphreys and Halpert state that the risk of acute phosphorus poisoning has been decreased but not eliminated by the prohibition of the manufacture and sale of yellow phosphorus matches. The ingestion of fireworks containing phosphorus is a cause of acute phosphorus poisoning in children. A case of fatal phosphorus poisoning in a 4½ year old boy, traced to such a source, is described. A review of the medical literature revealed a total of twelve reported cases. There is evidence that this figure does not give a true idea of the frequency of phosphorus poisoning caused by fireworks.

Congenital Osseous Syphilis.—The chief purpose of this study by McLean was to determine the value of the roentgenogram in the diagnosis of congenital syphilis and to correlate the roentgen picture with the underlying pathologic changes. The observations are based on the examination of more than 1,500 roentgen films of syphilitic infants, many of which were studied serially. It is not intended to offer the roentgenologist or clinician a substitute for scrupulous, critical examination, nor is it suggested that roentgenology will ever assume the place now held by serologic study in the diagnosis of the disease. It is only by the correlation of clinical, serologic and roentgen observations that knowledge of congenital syphilis will be furthered.

American Journal of Physical Therapy, Chicago

7: 441-484 (Feb.) 1931

High Lights in History of Roentgenology. I. S. Trostler, Chicago.—p. 447.
Use of Static Current: Rationale and Indications. F. H. Humphris, London.—p. 457.
*Action of Light on Blood Components. A. Furniss, London.—p. 465.
*Radium in Cancer Therapy. D. Quick, New York.—p. 468.
Significance of Precordial Pain. W. Martin, Atlantic City, N. J.—p. 471.
Ultraviolet Ray Therapy. E. P. Cumberbatch, London.—p. 474.

Action of Light on Blood Components.—According to Furniss, the blood is of great importance in actinotherapy. Various complex changes take place in the skin; the products elaborated there are transported to the organs and tissues of the body by the blood stream. Every blood constituent (the corpuscles, both red and white, the plates, the serum and the blood pigments) all undergo changes as a result of light acting on the body. Dealing with these constituents in turn, the author first considers the erythrocytes. In the absorption of light radiations by the blood, it appears that only the comparatively long wavelengths are effective, although in thin layers hemoglobin absorbs the visible and some of the ultraviolet rays. Under ultraviolet irradiation the erythrocytes slightly increase in number and the hemoglobin content increases after continued treatment. Often the worse the anemia, the more it seems to respond to ultraviolet irradiation. The erythrocytes are protected from the ultraviolet radiation by the serum; on the other hand, if suspended in physiologic solution of sodium chloride they are readily hemolyzed by this radiation. The visible and infra-red radiation is mostly converted into heat and used for warming the body, while some is emitted again (accounting for the fluorescence of some tissues). Wavelengths in the ultraviolet region and a small amount of those in the visible and infra-red are converted into chemical energy capable of affecting the chemical equilibrium of the blood, causing changes in its calcium, phosphorus and iron constitution. The fragility of the erythrocytes is said to be increased. The number of leukocytes is also affected differently by the different wavelengths. The longer ultraviolet rays (e. g., those emitted by an air-cooled mercury vapor lamp at a distance of 3 feet) cause reduction chiefly of the lymphocytes and to a less extent of the polymorphonuclear leukocytes. The visible rays in the red region and the infra-red rays cause a transient fall. The visible rays stimulate lymphocytosis and leukocytosis. It is the shorter ultraviolet rays that have the most important action on the leukocytes. All published results agree that ultraviolet radiation stimulates a lymphocytosis in man and in animals. Even after one dose, an increase of leukocytes amounting to from two to four thousand has been reported, the maximum being reached in about four to five hours after exposure. The lymphocyte count is increased so markedly as to be able to counteract the effect of diminution by roentgen rays. The blood plates also are increased by irradiation. It has been noted that they are abnormally few in animals kept in the dark from birth. If such animals are irradiated, an increase in the plates occurs.

Radium in Cancer Therapy.—Quick states that radium has made a notable contribution and has added a stimulus to the general problem of cancer investigation. Since it is an agent for local application only, it must not be regarded as an ideal cancer cure. It has, however, increased the curability of cancer and has reduced the severity of many operative surgical procedures. It has supplanted some surgical operations entirely. It has relieved operative surgery of the responsibility for attempting the unreasonable or impossible, as a frantic effort, and has made possible a larger measure of palliative relief in advanced cancer. Advancement in radium therapy depends on the intensive cooperation of pathologist, clinician and physicist. The technical problems of application and dosage intensity must be calculated and made with the greatest possible care and precision. The combination of radon, roentgen radiation and operative surgery offers far more in the average case of cancer than adherence to any one agent alone; they are complementary and not competitive.

Archives of Ophthalmology, Chicago

5: 161-326 (Feb.) 1931

*Exophthalmos Associated with Diabetes Insipidus and Large Defects in Bones of Skull. J. M. Wheeler, New York.—p. 161.
*Ocular Lesions in Septicemia. J. S. Friedenwald and B. Rones, Baltimore.—p. 175.
Pathology of Chronic Simple Glaucoma. R. Castroviejo, Chicago.—p. 189.
Ocular Tendon Transplantations: Three New Methods. R. O'Connor, San Francisco.—p. 209.
*Synergistic Action of Atropine and Epinephrine on Intrinsic Muscles of Eye. H. Hartgraves and P. C. Kronfeld, Chicago.—p. 212.
Primary Sarcoma of Iris: Iridectomy: No Recurrence in Three and a Half Years. W. Zentmayer, Philadelphia.—p. 219.

Sensitive Methods for Detection of Bjerrum and Other Scotomas. C. E. Ferree, G. Rand and L. L. Sloan, Baltimore.—p. 224.
*Reflex Transmission of Stimuli from One Eye to Other: "Dark-Light Test" Following Neurectomy. A. Feigenbaum, Jerusalem, Palestine. —p. 261.
Extension of Glioma (Retinoblastoma) Into Optic Nerve. A. B. Reese, New York.—p. 269.
*Mechanism of Convulsive Movements of Orbicularis and of Face: Manner of Removal. T. A. Williams, Washington, D. C., and Miami Beach, Fla.—p. 272.
*Relation of Paranasal Sinuses to Ocular Disorders: Especially to Retrobulbar Neuritis. S. R. Gifford, Chicago.—p. 276.

Exophthalmos in Diabetes Insipidus.—Wheeler states that exophthalmos, large defects in the bones of the skull and diabetes insipidus make up a syndrome of especial interest to pediatricians. It is of prime importance to ophthalmologists because the striking telltale sign is the exophthalmos, and because the optic nerve and retina may become involved, with consequent impairment of sight. The exophthalmos may be so great that impairment or loss of sight may result from exposure of the cornea. Given a child with unilateral or bilateral exophthalmos without evident cause, the ophthalmologist may well think of the possibility of Christian's syndrome. Let him palpate the skull for possible defects in the bone, particularly around the orbit, and subject the patient to roentgen examination of the head and of the hip bones. The roentgenologist may demonstrate areas of loss of bone that cannot be discovered by palpation. Let him think of the possibility of excessive thirst and of excessive urine of low specific gravity. With the condition well in the ophthalmologist's mind, the diagnosis of the syndrome is easy. Wassermann tests of the blood and spinal fluid have not been positive in any case. Tuberculin tests have been done in only a few cases, but there seems to have been no positive report. Chemical examination of the blood reveals nothing characteristic. Examination of the cellular elements of the blood may show nothing abnormal. In this regard, there is quite a contrast with such a condition as chloroma. At present one has a right to a mental picture of a neoplastic process involving structures in the floor of the third ventricle (tuber cinereum, infundibulum), possibly involving the hypophysis and other nearby cerebral structures, invading the orbit, and involving the bones of the skull and perhaps other bones. The infiltrating and destructive tissue need not be of a single pathologic class, but it is most likely to be the yellow, nodular lipoid storage xanthoma that Rowland has held responsible for this vicious process which occurs in children. With reasonable assurance, diabetes insipidus can be accounted for by disurbance of the cerebral tissue in the floor of the third ventricle, with or without invasion of the hypophysis. The defects of the bone probably are not the result of interference with function of these cerebral structures but are due to true invasion of the bones by the hyperplastic process. The pronounced exophthalmos is probably never due to mere loss of bone of the roof and other bony parts of the orbit but to true invasion of the orbit by the hyperplastic process. Invasion of the hypophysis may occur with or without erosion of the sella turcica. If the hypophysis is injured, asexuality, dwarfism and other evidences of interference of function may result.

Ocular Lesions in Septicemia.—A study made by Friedenwald and Rones of the eyes in thirty-two cases of septicemia obtained at necropsy has revealed a number of lesions not heretofore described in this condition. Nine cases showed an inflammatory lesion in the choroid, which is called septic choroiditis. This lesion resembles that produced experimentally in rabbits by Marchesani and von Szily, so-called allergic or anaphylactic choroiditis. The finding of this condition in human cases without any clinical or histologic evidence of sympathetic ophthalmia strongly supports the view that these lesions are in no way related to sympathetic ophthalmia. A case of subacute bacterial endocarditis complicated by embolic neuroretinitis and a case of chronic nephritis, arteriolar sclerosis, syphilitic aortitis and albuminuric retinitis with terminal *Streptococcus viridans* septicemia are reported. Periarterial inflammatory nodules were found in the choroid similar to those described by Goldstein and Wexler in a case of periarteritis nodosa and by Hanssen and Knack in cases of albuminuric retinitis. The possible relation of these two conditions is discussed. A case of generalized periarteritis nodosa with ocular lesions is reported.

Synergistic Action of Atropine and Epinephrine on Intrinsic Muscles of Eye.—Hartgraves and Kronfeld present facts that speak much in favor of the opinion that epinephrine, in the dose that was used in their cases, has no influence on the tonicity of the ciliary muscle and therefore no noticeable influence on the static refraction of the eye, although the range of accommodation is considerably reduced. Epinephrine and cocaine, therefore, are cycloplegics which prevent, or in smaller doses only reduce, the contractility of the ciliary muscle but do not change its original natural tone. For atropine the observation still holds true that it causes the maximum possible relaxation of the ciliary muscle and so the minimum static refraction known thus far. The failure of the sympathomimetic drugs to increase the effect of atropine indicates strongly that the effect of the latter on the ciliary muscle cannot be increased by any method.

Reflex Transmission of Stimuli from One Eye to the Other.—From tests described by Feigenbaum, two conclusions may be reached: 1. The neurectomized eye reacts in a typical way, although the sensitive connections with the centers are cut. Thus one may assume a so-called axon reflex; i. e., a short reflex that does not pass through the center (intra-ocular vasomotor reflex of the uveal vessels). 2. The influence of the second eye probably likewise consists in a primitive reflex of this kind; i. e., an interocular vasomotor reflex transmission of stimuli. It is thus comprehensible that, in absolute glaucoma with hypotonia (atrophy of the iris and secondary cataract) in which degeneration of the relative nervous receptor organs has occurred, the stimulus meets with no response. With regard to the aforementioned assumption of Birch-Hirschfeld, and also in neurectomized patients, the results of the dark-light test seem to point more to the probability that in primary glaucoma the parallelism in reaction comes from mutual influence of both eyes and that the lowering of pressure in one eye, after the trephining of the other, must be ascribed to a vasomotor reflex. It is also easy to understand why a secondary glaucoma often does not show this parallelism, as it frequently arises not from vascular but from coarse mechanical lesions; for instance, from luxation of the lens. In all probability, a certain predisposition of the vessels is a primary condition for the parallelism, somewhat as Schmidt regards the endothelium in patients with glaucoma. This predisposition would then be the hypothetic directing cause for the conformity in the reaction of eyes with primary glaucoma. In general it may be said that, in the dark, eyes behave as if there were an irritation of the cervical sympathetic (dilatation of the pupil, a rise in tension), while with regard to the effect of light (contraction of the pupil, a fall in tension) it appears as if a parasympathetic stimulation is predominant. The author believes that one should not speak of a causal connection between the width of the pupil and ocular tension, but rather of a far-reaching coordination.

Mechanism of Convulsive Movements of Orbicularis and of Face.—Williams reports six cases of convulsive movements of the orbicularis and of the face which illustrate the fact that convulsive movements of this kind may depend on psychologic mechanisms even when they originate in an uneasiness of physical origin. There may be some general toxic condition, like Bright's disease and high blood pressure, or an endocrine disorder, as dysthyroidism or dyspituitarism. These conditions make the patient uneasy, and he changes his position. On the other hand, the cause of the convulsive movement may be purely psychologic, such as worry or anxiety. The physician should determine the mechanism of the movement in order that he may devise methods to overcome it when possible. This is eminently possible in the psychogenic cases provided the patient is given an intelligent understanding of himself and the proper training is then followed. It is the process of "conditioning" comprised in psychotherapy. Convulsive and intemperate tics are accompanied by consciousness of the act, are preceded by a desire sometimes amounting to a passion to perform it, and are followed by a feeling of relief. The victim feels compelled to make the movement comprising the tic; hence the term impulsive or compulsive neurosis. The movements always represent, however incompletely, some voluntary act; e. g., turning the

head, wrinkling the nose, shrugging the shoulders, biting the cheek, blinking the eye, sniffling or jerking a limb. The end to which the movement was first directed, however, has often passed from the recollection of the patient, and the act itself has often degenerated into a caricature of what it originally was. A simple example is winking of the eyes which has continued for years in spite of the fact that the irritation of the foreign body which first excited it has long subsided. A tic often originates in an idea, which ultimately becomes ignored or forgotten by the patient.

Relation of Paranasal Sinuses to Ocular Disorders.—In the causation of retrobulbar neuritis, multiple sclerosis is given by Gifford as the most important disease, probably accounting for over 50 per cent of cases. Cases due to purulent sinusitis comprise about 3.5 per cent. Of the 15 or 20 per cent for which no cause can be found, opinions differ as to how many are caused by latent or hyperplastic sinusitis. There is pathologic evidence that such forms of sinusitis may cause retrobulbar neuritis by direct extension. Before operations on the sinuses are performed in such cases, every effort must be made to eliminate other causes, especially multiple sclerosis and tumor of the brain. Examination of the spinal fluid with reference to the gold curve and cell count should be made in every case. Tissue removed from the nose should be examined microscopically in every patient operated on, since it is only through knowledge of the pathologic process in such cases that a better understanding of the whole problem may be obtained. With present information and methods of diagnosis, there will still be a number of cases in which exploratory operation on the sinuses is indicated.

Arkansas Medical Society Journal, Little Rock

27: 177-192 (Feb.) 1931

Treatment of Cystocele: Watkins Interposition Operation. F. Krock, Fort Smith.—p. 177.
Diagnosis and Treatment of Osteomyelitis. F. W. Carruthers, Little Rock.—p. 180.

Canadian Medical Association Journal, Montreal

24: 187-346 (Feb.) 1931

Rest, Work and Play in Health and Disease. E. F. Buzzard, Oxford.—p. 187.
Certain Aspects of Pathogenesis of Angina Pectoris. J. H. Means, Boston.—p. 193.
*Anterior-Pituitary-Like Hormone of Human Placenta. J. B. Collip, D. L. Thomson, M. K. McPhail and J. E. Williamson, Montreal.—p. 201.
*Incorporation of Vitamins in Bread. F. F. Tisdall, T. G. H. Drake and A. Brown, Toronto.—p. 210.
*Uroselectan for Intravenous Pyelography. J. C. McClelland, Toronto.—p. 213.
Immunologic Problems in Septicemia. F. T. Cadham, Winnipeg.—p. 219.
Observations on Sympathetic Nervous System. W. J. Mayo, Rochester, Minn.—p. 226.
Clinical Results Following Operation of Sympathetic Ramisection. N. D. Royle, Sydney, Australia.—p. 229.
Renal Sympatheticotonus and Renal Sympathectomy. S. H. Harris and R. G. S. Harris, Sydney, Australia.—p. 235.
Sleep and Its Disorders in Childhood. H. C. Cameron, London.—p. 239.
Phrenectomy. P. S. Irwin, Waiakoa, Hawaii.—p. 245.
*Ethyl Chloride and Its Place in Anesthesia. H. J. Shields, Toronto.—p. 250.
Feasibility of Contributory Health Insurance Scheme for Manitoba. E. S. Moorhead, Winnipeg.—p. 254.
Significance of Reflex Action in Color Vision. F. Allen, Winnipeg.—p. 259.
Administration of Carminatives. V. E. Henderson, Toronto.—p. 262.
Placenta Praevia: Cesarean Section: Recovery. R. Mitchell, Winnipeg.—p. 265.
Unusual Case of Unilateral Renal Bleeding. E. Smith, Edmonton.—p. 268.
Interesting Cases of Hypertrophic Pyloric Stenosis. R. R. MacGregor, Kingston.—p. 269.
Case of Rhinophyma. B. F. Macnaughton, Montreal.—p. 271.
*Mercurialism from External Use of Mercurochrome-220 Soluble. D. E. H. Cleveland, Vancouver.—p. 272.

Anterior-Pituitary-Like Hormone of Human Placenta.—Methods of preparing extracts of human placentas containing an alcohol insoluble principle are described by Collip and collaborators. The effect of such extracts on the growth and weight of the ovaries, testes, seminal vesicles, prostates and epididymides of immature and adult rats are noted and compared with the effects obtained by implantation of pituitary bodies.

Vitamins in Bread.—Tisdall and collaborators state that although the refined grain products which bulk so largely in the modern diet are deficient in vitamins, an additional general supply of vitamins B_1 and E may be made available by incorporating wheat germ in bread. An additional general supply of vitamin D may be made available by incorporating it in bread. The vitamin D does not change in any way the appearance or taste of the bread. This procedure, either alone or with the addition of the wheat germ, can be utilized at no additional cost to the consumer. In regard to vitamin D, egg yolk is the only commonly used food substance which contains this vitamin in appreciable amounts, the chief source being sunshine and skyshine. Bread is a particularly suitable carrier for vitamins on account of its universal distribution and its large consumption by the wage earning class, who frequently cannot afford to buy the more expensive vitamin containing foods.

Intravenous Pyelography.—Pyelograms made by McClelland with iopax were not so sharply defined as those made with sodium iodide. Iopax will outline a pelvis and ureter when some mechanical obstruction is present which prevents sodium iodide reaching the kidney pelvis. It usually gives a better outline in the presence of an obstruction, though not always. Cystoscopy may not be necessary to localize a calculus in the urinary tract. Iopax is useful when one is unable to catheterize the ureters to get a pyelogram and ureterogram. One may be deceived as to the pathologic condition of the kidney when no iopax is excreted and must be careful about the conclusions drawn. Iopax may be of use as a urinary antiseptic. Movements of the ureter are seen; that is, systole and diastole. It is of great assistance to the urologist in the diagnosis of difficult cases. In a series of cases in which it was used by the author, reactions were not noted.

Ethyl Chloride in Anesthesia.—Shields emphasizes that ethyl chloride is not a suitable anesthetic for the excessively stimulated or the extremely apathetic patient; that it should not be used in the presence of respiratory obstruction of any character; that it is contraindicated for extremely painful surgical procedures; that its real danger is partly due to its toxicity, but more particularly to its extreme volatility, which readily permits of overdose and to its quick action, which necessitates constant and close attention for untoward signs; and finally that for the average individual, when given with reasonable precautions, it may be considered a safe anesthetic.

Mercurialism from External Use of Mercurochrome.—Cleveland reports that the lesions in a case of impetigo contagiosa in a new-born child, apparently otherwise healthy, were treated over a period of twelve days with 4 per cent mercurochrome-220 soluble. About the seventh or eighth day the child began to be salivated, failed to feed properly and lost weight, apparently because of soreness of the mouth, and on the eleventh day developed a generalized erythema. At this time albumin was found in the urine. All these symptoms subsided rapidly on withdrawal of the mercurochrome. Two months later the child was reported by the mother as being apparently perfectly well. The case is regarded as one of mercurialism due to the external use of mercurochrome.

Florida Medical Association Journal, Jacksonville

17: 351-398 (Feb.) 1931

Blood Transfusion: Clinical Application and Reactions. J. E. Boyd and G. W. Richardson, Jacksonville.—p. 361.
Acute Intestinal Obstruction: Value of Spinal Anesthesia in Determining Necessity for Surgical Exploration of Abdomen. G. M. Dawson, West Palm Beach.—p. 364.
Rheumatic Fever and Lobar Pneumonia: Occurrence in Southern Florida. F. S. Nichol, Miami.—p. 366.
Disorders of Heart Secondary to Thyroid Disease. E. C. Swift, Jacksonville.—p. 368.
Factors Concerning Pulmonary Tuberculosis. G. C. Freeman, Lakeland.—p. 370.
Bronchial Spirochetosis. J. A. Mease, Jr., Dunedin.—p. 372.
Sickle Cell Anemia: Two Cases. W. G. Miles, Chattahoochee.—p. 374.
How to Prevent Depressant Effect of Ethyl Chloride in General Anesthesia. M. H. Stuart, St. Petersburg.—p. 375.

Indiana State Medical Assn. Journal, Fort Wayne

24: 69-122 (Feb. 15) 1931

Importance of History and Physical Examination in Diagnosis. J. B. Herrick, Chicago.—p. 69.
Familial von Recklinghausen's Disease: Unusual Manifestations. N. M. Beatty and F. W. Cregor, Indianapolis.—p. 72.
Childhood Tuberculosis. P. D. Crimm, Evansville.—p. 76.
Tumors of Colon. W. H. Baker, South Bend.—p. 79.
Radiographic Factor in Early Diagnosis of Pulmonary Tuberculosis. C. A. Stayton, Indianapolis.—p. 85.

Iowa State Medical Society Journal, Des Moines

21: 55-102 (Feb.) 1931

Silas Weir Mitchell, Man of Medicine and Letters. T. B. Throckmorton, Des Moines.—p. 55.
Radiation in Pelvic Disease. H. F. Herrick, Ottumwa.—p. 63.
Prolonged Bed Rest in Tuberculosis. C. F. Taylor, Norton.—p. 66.
Rôle of Surgery in Treatment of Pulmonary Tuberculosis. J. D. Bisgard, Harlan.—p. 68.
Allergy: Hay Fever and Eczema. Z. W. Stewart, Iowa City.—p. 72.
Is Oviduct Open? L. D. Smith, Des Moines.—p. 77.
Motivation in Medical Symptomatology. W. Malamud, Foxboro, Mass. —p. 80.
Gonococcal Pyelonephrosis. H. P. Lee, Iowa City.—p. 84.

Journal of Comparative Psychology, Baltimore

11: 237-318 (Feb.) 1931

Insight and Foresight in Various Animals. K. D. McDougall and W. McDougall.—p. 237.
Comments on First Reports of Columbia Study of Animal Drives. C. J. Leuba.—p. 275.
Study of Form Perception in Indirect Vision. R. M. Collier, Chicago. —p. 281.
Relationship Between Compulsory Physical Exercise and Ability of White Rat to Learn and Relearn an Elevated Skeleton Maze. S. M. Corey, Chicago.—p. 291.

New England Journal of Medicine, Boston

204: 243-296 (Feb. 5) 1931

Coexistence of Myxedema and Pernicious Anemia. J. H. Means, J. Lerman and W. B. Castle, Boston.—p. 243.
Eighth New England Health Institute. G. H. Bigelow and H. L. Lombard, Boston.—p. 248.
Effect of Calcium in Pruritic Skin Affections: Calcium Gluconate. J. G. Downing and A. Blumenfeld, Boston.—p. 250.
Cinchophen and Acute Yellow Atrophy of Liver. W. G. Walker, Brocton.—p. 253.
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*Traumatic Separation of Symphysis Pubis. J. W. Sever, Boston.—p. 355.
*Sodium Amytal as Intravenous Anesthetic. J. C. McCann and J. Fallon, Worcester, Mass.—p. 358.
*Clinical Experiences with Sodium Amytal and Avertin as Basal Anesthetics. E. B. Ferguson, Boston.—p. 363.
Aims of Medical Education. S. Rushmore, Boston.—p. 366.
Progress in Gastro-Enterology in 1930. A. E. Austin, Boston.—p. 377.

Traumatic Separation of Symphysis Pubis.—Sever reports three cases of traumatic separation of the symphysis pubis that show that functional recovery may occur in spite of considerable separation at the symphysis, even if perfect anatomic reposition is not obtained. A heavy swathe, kept tight, is usually sufficient support to the pelvis. The scheme of a constant pressure swathe is useful and could be employed. Except in unusual cases operation is not indicated.

Sodium Amytal as Intravenous Anesthetic.—Sodium amytal was given intravenously by McCann and Fallon in 130 selected surgical cases. It induced only a basic hypnosis, and additional anesthetics were needed to eliminate reflexes and relax muscles. There were no discomforts with induction such as occur with inhalation or local anesthesia. Ether was always the supplementary anesthetic except for thyroid operations, for which nitrous oxide-oxygen was used. The amount of ether needed was less by 25 to 75 per cent than would have been required had ether alone been used. Amytal caused a transient fall of blood pressure which, when necessary, was controlled by epinephrine. All patients convalesced with much less discomfort than usually follows operation. Nausea and vomiting occurred in only 21 of 130 patients. Patients slept about four and a half hours after operation and were lethargic for the next twenty-four. They remembered little of the experience on the day of operation. Sensibility to pain was reduced, so that they needed little morphine after operation. Pulmonary edema was the only serious complication. It occurred twice in the presence of advanced cardiac disease, once when there was a past history of lung abscess, and once when there was no such history. Three of the four patients died from pneumonia. Urinary retention occurred a little more often than with ether alone. Restlessness developed as consciousness returned, but morphine controlled it satisfactorily.

Sodium Amytal and "Avertin."—Ferguson states that sodium amytal is an excellent sedative preliminary to other and deeper narcosis. Postoperative nausea and vomiting are greatly reduced. Oral administration relieves immediate preoperative apprehension. Intravenous administration, while assuring more accurate dosage, is likewise more time consuming and slightly more hazardous and is hardly justified. The contraindications to the use of "Avertin" are conditions of shock and marked debility, disease of the liver or kidneys, or presence of disease of the rectum, the chief disadvantage being the possibility of rectal irritation following its use. Its advantages are ease of induction, better relaxation than is possible with other light anesthetics, moderately prolonged postoperative sleep, and great reduction in instances of postanesthetic nausea and vomiting. Neither sodium amytal nor "Avertin" fulfils the requirements of a good anesthetic which will produce unconsciousness speedily, and without untoward after-effects. They do, however, offer definite advantages as preliminary sedatives that deepen the narcosis and extend the field of usefulness of some of the volatile anesthetics, such as nitrous oxide. Used in this way, sodium amytal is especially indicated in the nervous, apprehensive individual, where only light narcosis is needed and muscular relaxation is not essential. "Avertin," on the other hand, in combination with nitrous oxide produces greater muscular relaxation over a long period of time, but is more toxic and has a more limited field of usefulness.

New York State Journal of Medicine, New York

31: 195-260 (Feb. 15) 1931

Review of Progress of Control of Tuberculosis and Advances in Its Pathology and Bacteriology. E. R. Baldwin, Saranac Lake.—p. 195.
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Physical Therapy in Compensation Work. H. J. Knickerbocker, Geneva. —p. 200.
Artificial Pneumothorax and Phrenicectomy in Treatment of Pulmonary Tuberculosis. H. F. Gammons and A. N. Aitken, Lockport.—p. 203.
Radium in Dermatology. W. H. Cameron, New York.—p. 206.
Diagnosis of Biliary Tract Diseases in Early Stages. J. A. Lichty and S. Bowen, Clifton Springs.—p. 209.
Sterility Secondary to Induced Abortion: Tubal Factor. I. C. Rubin, New York.—p. 213.
Strychnine Poisoning. J. Aikman, Rochester.—p. 219.

Northwest Medicine, Seattle

30: 55-108 (Feb.) 1931

Aschheim-Zondek Pregnancy Test: Analysis of 150 Cases by Simplified Technic. A. Mathieu and T. McKenzie, Portland, Ore.—p. 55.
Adenomyoma of Uterus. W. C. Hunter and J. C. Adams, Portland, Ore.—p. 62.
Avertin: Anesthesia and Analgesia in Obstetrics by Its Rectal Administration. C. W. Whitaker, Tacoma, Wash.—p. 69.
Nasal Plastic Surgery: Convex Nose in Women. J. H. Harter, Seattle. —p. 74.
Value of Tests for Functional Capacity of Liver. W. J. Kerr, San Francisco.—p. 78.
Etiologic Concept of Chronic Arthritis. F. R. Maddison, Tacoma, Wash. —p. 81.
Bronchial Carcinoma: Case. K. Winslow, Seattle.—p. 86.
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Diuretics and Myocardial Efficiency. C. P. Wilson, Portland, Ore. —p. 94.
Lowering the Infant Mortality Rate. V. A. Douglas, Salem, Ore.—p. 96.

Oklahoma State Medical Assn. Journal, Muskogee

24: 33-64 (Feb.) 1931

Glycogen in Medical and Surgical Conditions. G. H. Stagner, Erick. —p. 33.
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34: 291-362 (Feb.) 1931

Significance of Personality Make-Up in Medicine: Influence on Personality of Thyroid Dysfunction, Especially in Graves' Disease. C. C. Wholey, Pittsburgh.—p. 291.
Personality in Determination of Types of Functional Psychoses. H. K. Petry, Warren.—p. 294.
Personality Deviations Associated with Sinistrality and with Defective Hearing. G. F. Willey, Harrisburg.—p. 296.
Present Status of Thoracic Surgery. J. Alexander, Ann Arbor, Mich. —p. 300.
Sinusitis in Children. W. B. Davis, Philadelphia.—p. 305.
Differential Diagnosis of Scarlet Fever, Measles and Rubella. S. S. Woody, Philadelphia.—p. 307.
Diagnosis of Acute Osteomyelitis. F. R. Bausch, Allentown.—p. 312.
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Cyst of Iris Following Penetrating Wound of Eye. O. G. A. Baker, Johnstown.—p. 330.
Sarcoma of Choroid. W. S. Reese, Philadelphia.—p. 331.

Philippine Journal of Science, Manila

44: 1-251 (Jan.-Feb.) 1931

*Experimental Studies of Dengue. J. S. Simmons, J. H. St. John and F. H. K. Reynolds.—p. 1.

Experimental Studies of Dengue.—In 1928, Simmons and collaborators selected dengue as a subject for study. The problems considered had to do with the epidemiology of dengue; the nature of the virus, its identification, size, filtrability, appearance, virulence, viability in vitro and its possible growth in culture mediums; the possibility of transmitting dengue to man by insects other than *Anopheles aegypti;* the possibility of transmission of dengue from infected to normal insects; search for a lower animal susceptible to dengue which would be suitable for use, instead of man, in diagnostic and experimental work; search for improved methods of diagnosis by studies of the leukocyte curves and serologic reactions of patients; further studies of the immunity to dengue of man and lower animals; observations on the therapeutic value of immune serum, and the investigation of a prophylactic vaccine. The results, even of negative observations, are submitted in detail, as it was believed that the data brought out not only would add certain fundamental information to the present knowledge concerning dengue but might also prove of assistance to those engaged in experimental investigations of both dengue and yellow fever.

Public Health Reports, Washington, D. C.

46: 333-385 (Feb. 13) 1931

Typhus Fever: Virus of Typhus Type Derived from Fleas Collected from Wild Rats. R. E. Dyer, A. Rumreich and L. F. Badger.—p. 334.
Influence of Arsenicals and Crystalline Glutathione on Oxygen Consumption of Tissues. C. Voegtlin, S. M. Rosenthal and J. M. Johnson. —p. 339.

Surgery, Gynecology and Obstetrics, Chicago

52: 273-664 (Feb. 15) 1931

Ideals and Art of Surgery. G. G. Turner, Newcastle-upon-Tyne, England.—p. 273.
*Treatment of Malignant Tumors of Urinary Bladder. H. Wade, Edinburgh, Scotland.—p. 312.
*Diverticula of Urinary Bladder. W. E. Lower, Cleveland.—p. 324.
Sterility in Male. F. R. Hagner, Washington.—p. 330.
*Tumors of Testis: Pathology and Clinical Malignancy. D. W. MacKenzie and M. Ratner, Montreal.—p. 336.
Pathology of Spread of Cancer of Rectum and Its Bearing on Surgery of Cancerous Rectum. W. E. Miles, London.—p. 350.
*Surgical Treatment of Neurogenic Contractures. O. Foerster, Breslau, Germany.—p. 360.
*Contractures of Hand. S. L. Koch, Chicago.—p. 367.
*Treatment of Compound Injuries. F. J. Cotton, Boston.—p. 371.
*Splint Grafts in Treatment of Delayed and Nonunion of Fractures. D. B. Phemister, Chicago.—p. 376.
*Surgical Treatment of Cerebral Tumors: Technical Considerations. T. De Martel, Paris.—p. 381.
Fundamental Principles in Treatment of Acute Empyema. A. L. Lockwood, Toronto.—p. 386.
Etiology and Treatment of Pulmonary Abscess. G. J. Heuer, Cincinnati. —p. 394.
*Pathogenesis, Diagnosis and Treatment of Bronchiectasis. C. A. Hedblom, Chicago.—p. 406.
*Surgical Treatment of Tumors of Lung and Mediastinum. S. W. Harrington, Rochester, Minn.—p. 417.
Efforts to Transfer Monkey Malaria to Man. H. C. Clark, Panama. —p. 428.
*Sterility of Catgut in Relation to Hospital Infections: Effective Test for Sterility of Catgut. F. L. Meleney and M. Chatfield, New York. —p. 430.
Indications and Technic of Different Operations for Chronic Mastoiditis. J. M. Smith, New York.—p. 442.
Preparation for Ophthalmic Practice. E. Jackson, Denver.—p. 446.
Cataract Operation. W. B. Lancaster, Boston.—p. 452.
Cranial Sinus Thrombosis: Ophthalmologic Aspects. W. L. Benedict, Rochester, Minn.—p. 464.
Neurosurgical Aspects of Sinus Thrombosis from Standpoint of Ophthalmology. E. De Grósz, Budapest.—p. 471.
Rhinologic Aspects of Cavernous Sinus Thrombosis. E. R. Faulkner, New York.—p. 474.

Malignant Tumors of Urinary Bladder.—Wade states that in approaching the question of the treatment of malignant disease of the urinary bladder one has first of all to decide clearly what value is to be attached to the use of methods of tumor cell destruction as curative agents for cancer in this region. If one is convinced, or if it is one's experience, that radium or diathermy alone or in combination can effect a cure in a reasonable number of cases, it follows that one should employ them in preference to any other form of treatment, as by their use the bladder can be conserved as a functioning cavity to the comfort and peace of mind of the patient. The author purposes advocating radical operative surgical treatment, as his experience is that radium does not cure carcinoma of the urinary bladder, and having viewed the distress of the sufferer from advanced carcinoma of that organ, he is convinced that radical mutilating surgery is warranted to improve or to cure the disease present. It is obvious that the patient's comfort after total cystectomy will be much greater if the urine stream flows into the bowel than onto the surface of the loins. Unfortunately, the debilitated state of the patient may contraindicate the former proceedings, and thus the latter is preferable. In six of the author's cases the ureters were transplanted onto the lateral aspect of the abdominal wall, a simple, safe and speedy procedure which can be carried out in one stage. The ureters were exposed through a gridiron incision, divided and brought to the surface and anastomosed to the skin. Several attempts were made to create by a plastic operation a nipple at the orifice to facilitate the collection of urine but all these attempts failed, with the result that the collection of urine from the two ureteral fistulas was rendered more difficult. After several attempts an apparatus was devised which consists of two rubber cots that fit accurately over the ureteral orifices. These collect the urine, which is carried down from them into the urinals fixed to the thighs. The apparatus has been only moderately successful, in that it has been found extremely difficult to devise an instrument that will keep in accurate apposition when the patient is standing, sitting, or lying down.

Diverticula of Urinary Bladder.—In a series of 151 cases of diverticula of the urinary bladder observed by Lower, only two were in women. That obstruction to the urinary outlet is a strong etiologic factor is further suggested by the fact that in 48.4 per cent of the total series some obstruction of the urinary outlet existed, a ureteral caruncle being present in each of the two women in the series. Although a cystoscopic examination, when skilfully made, will usually reveal the presence and the situation of a diverticulum, its size cannot be accurately estimated. The size of the opening into the diverticulum is no index to the size of the sac, as the largest diverticula often have small openings. Therefore, after the presence of a diverticulum had been determined, the wisest procedure is to determine its size by cystograms. After the bladder has been drained by catheterization, it is refilled with a solution of sodium iodide, and a picture is taken with the patient on his back. Then the patient is turned on the side and another roentgenogram is taken. The bladder is then emptied as completely as possible by

catheterization without introducing the tip of the catheter into any of the diverticula, and another picture is taken. The roentgenogram is then studied to determine whether or not retention is present. This method of studying the bladder for the determination of the presence of diverticula is much more satisfactory than the older method of filling the bladder and making films in the usual positions. The final film, made after the bladder has been emptied, may indicate whether or not a diverticulum should be removed. In the author's clinic the following operative technic has been adopted: Under spinal or sacral anesthesia, to which analgesia with nitrous oxide-oxygen is added in the case of an apprehensive patient, a suprapubic incision is made and carried down to the bladder. The diverticulum is located and from its size and position the mode of procedure is determined. If the extravesical approach is to be used, the collapsed diverticulum is first converted into a solid or semisolid tumor by packing it with a gauze tape. It then becomes a comparatively simple matter to dissect down outside the bladder, sever the attachment of the diverticulum, and close the opening into the bladder. It is important that at the point where the diverticulum has been removed the bladder be closed with a good muscular approposition, the walls being inverted if possible so as to leave a slight ridge on the inner surface of the bladder rather than a depression at the point from which the attachment of the diverticulum was removed, for such a depression might serve as a starting point for a recurrence of the diverticulum. The prevesical space should always be carefully drained. The bladder is closed with catgut sutures. An inlying catheter placed in the urethra is allowed to remain for several days.

Tumors of Testis.—On the basis of a study of twelve cases of tumor of the testis, MacKenzie and Ratner conclude that many patients with this condition consult a physician when metastases have already made their appearance. In a large number of tumors of the testis, metastases occur long before there is any clinical evidence of them. Tumors of the testis metastasize early by way of the blood vessels and lymphatics. Physicians should palpate carefully the genital organs of patients during their routine physical examination. Every nodule discovered should be looked on with suspicion. Malignant disease of the testis at best is a grave disease. The treatment that offers the best prognosis is castration supplemented by high voltage roentgen therapy.

Surgical Treatment of Neurogenic Contractures.—Foerster divides neurogenic contractures into three types; namely, contracture caused by pathologic irritation of peripheral motor nerve fibers, contractures produced by pathologic irritation of afferent peripheral nerve fibers, and reflex contractures following pyramidal tract lesions. In reflex contractures following pyramidal tract lesions the increased response of the muscle to stretch may be relieved by operations on the muscles and tendons, total or subtotal deefferentation of the spastic muscle by total or subtotal resection of its motor nerve branches, and deafferentation of the spastic muscle by resection of the posterior spinal roots.

Contractures of Hand.—Koch emphasizes the importance of prevention of contractures of the hand. Contractures result from scar tissue formed after normal tissue has been destroyed; for example, after a burn or a crushing injury. It is formed as a diffuse inflammatory process, such as a cellulitis of the hand or a tendon sheath infection, subsides; it is formed if only tissues which normally are subject to free and constant movement are kept immobilized for more than three or four days. Familiar examples are the fibrosis that develops in fingers which are fixed in extension because of a fractured phalanx or metacarpal, or the fibrosis that develops—perhaps not quite so promptly—about any joint that is immobilized because of a fracture in its vicinity. With these causes of fibrosis and scar tissue formation in mind one may formulate a few principles of importance in prevention: first, not to wait for large raw surfaces, which result from burns and crushing injuries, to heal spontaneously. If such surfaces are covered at the earliest possible moment with skin grafts, time is saved for the patient, the constant danger of reinfection is eliminated and the formation of scar tissue is reduced to a minimum. A second important principle in prevention, and one that can scarcely be overemphasized, is early mobilization. If fibrosis can develop after simple fractures when no infection is present, it is obvious that the presence of an inflammatory exudate hastens and accentuates the process and that in the treatment of a hand infection early mobilization is an important feature of adequate surgical care if contractures are to be prevented. When contractures have already developed, the treatment varies with the anatomic structures involved. There may be involvement of skin and subcutaneous tissue only, of tendons alone, of the median and ulnar nerves, of joints of fingers, hand or wrist, or of several or all of these structures. For contractures due to loss of skin and subcutaneous tissue the author has invariably resorted to some form of skin grafting to replace the lost tissue. For contractures of the palm, he has come to use in the majority of cases the free full thickness graft. For contractures due to firm scar tissue between the thumb and index finger and contractures involving the dorsum of the hand alone, the tubed flap affords a highly satisfactory method of securing a covering of normal tissue. For contractures involving the dorsum of fingers as well as the hand, a pocket flap on the abdomen or the thigh is useful.

Treatment of Compound Injuries.—Cotton classes all compound fractures as infected and opens up the wound, cleans it, fixes the fracture, and closes the wound not too tightly. He remembers no punctate wound that became septic after real cleaning but can recall several not cleaned that became septic. Débridement, unless properly done, may lead to disastrous results. It would seem best to open up widely, inspect the wound thoroughly, clean out doubtful tissue, and wash and trim the wound again, being careful not to injure vessels and nerves. The wound should be closed but not too tightly. One should always bear in mind that a hematoma is ideal culture ground for infection.

Treatment of Delayed and Nonunion of Fractures.—Ununited fractures in which there is little or no displacement or angulation of fragments are treated by Phemister by the simple application of whole thickness splint grafts or in some cases of osteoperiosteal grafts to the fragment surfaces bridging the fracture line and held in place by the sutured soft parts. Intramedullary grafts are unsuited for cases of nonunion but the Hoglund sliding graft may be used in fresh fractures and in delayed union when marked displacement of fragments is the indication for operation. A broad inlay graft which is turned on edge and made to fill both the medullary cavity and a slot cut in the cortex affords a suitable method of treatment of some cases of nonunion of large bones.

Surgical Treatment of Cerebral Tumors.—De Martel's article is a summary of his report to the Congres International de Neurologie. In it he shows how, in his practice, improvement in technic had brought about better results in intracranial surgery. He also describes the mechanical equipment he has adopted and the special methods he employs in operating on and removing tumors of the brain.

Pathogenesis, Diagnosis and Treatment of Bronchiectasis.—According to Hedblom, bronchiectasis may be unilateral or bilateral, congenital or acquired. Most of the cases of bilateral involvement were probably unilateral originally. In the congenital type the dilatations result from intra-uterine anomalies or disease. Symptoms develop only following secondary infection. Acquired bronchiectasis is due to mechanical dilation of bronchi weakened by infection. The dilating force may be the atmospheric pressure in the presence of an intrapleural pressure reduced below the normal by atelectasis or by other cause, or it may be the extrabronchial traction of fibrous tissue or a combination of these factors. The expiratory phase of coughing, during which the glottis is closed, does not produce any dilating effect, since the increased intrabronchial pressure is produced by the chest walls, and the abdominal muscles through the relaxed diaphragm, applied therefore from without the bronchial walls. The characteristic syndrome of bronchiectasis is a chronic cough with purulent sputum, a few râles over one or both bases, and a roentgenogram showing a normal condition or only slight abnormalities in a patient in fair to good general condition. A positive contrast medium bronchogram furnishes conclusive clinical proof, not only of the presence of bronchiectasis but also of its site, extent and type. It is the only means

of a positive diagnosis in the incipient stage of the disease. The dilating force exerted by atmospheric pressure represented by the difference between it and intrapleural pressure and the extrabronchial scar tissue dilating traction can be completely neutralized by pulmonary collapse. Early diagnosis and prompt collapse will arrest the process before the dilatation has become extensive and widespread. Pulmonary collapse not only arrests the dilating process but also brings about a partial collapse of the dilated bronchi. Cicatricial contraction of fibrous tissue already present and secondary fibrosis that results from long continued collapse promote complete obliteration of the diseased bronchi. The methods of partial pulmonary collapse are phrenic neurectomy, partial pneumothorax, and circumscribed thoracoplasty. Those of relatively complete collapse are pneumothorax or thoracoplasty. Phrenic neurectomy is the method of choice in early cases. If it does not bring about sufficient relief of symptoms, a secondary partial pneumothorax or thoracoplasty is indicated. In cases with extensive or advanced unilateral involvement, a phrenic neurectomy followed by a graded thoracoplasty is the treatment of choice. Bilateral involvement of marked grade is beyond the hope of relief. Lobectomy secondary to thoracoplasty is a safer procedure than primary lobectomy and is indicated in those cases in which the patient is not sufficiently relieved by thoracoplasty. Cautery extirpation or eradication brought about by mobilizing and prolonged contraction of the diseased lobe are alternate methods for cases with advanced extensive lesions. The best results may be expected from compression treatment in incipient cases the early diagnosis of which is made possible by contrast medium bronchography.

Tumors of Lung and Mediastinum.—In the last five years, Harrington has performed transpleural operation in twenty-eight cases of intrathoracic tumor. He gives a brief summary of the entire series, including the types of tumors, the methods of their surgical removal, the postoperative complications, and the results to the present time. He also reports a recent case of mediastinal tumor to illustrate the usual posterior transpleural type of operation that he prefers in these cases. In the series of twenty-eight cases, pneumothorax was induced before operation in eighteen.

Sterility of Catgut.—Meleney and Chatfield demonstrated, both from the development of postoperative infections traced to catgut and by the examination of specimens of catgut obtained from the open market, that surgeons throughout the country are using contaminated catgut in their operations, from time to time. With the hope of making it impossible to purchase contaminated catgut, they studied the problem and have proposed a test for catgut sterility. The test is based on the careful study of bacteria present in raw catgut, particularly the pathogenic spore-forming anaerobic organisms. The medium should be a clear fluid containing adequate nutrient substances such as meat infusion broth, with peptone and reducing substances such as dextrose and gelatin. Its hydrogen ion concentration should be the optimum for the pathogenic spore-forming anaerobes, which is p_H 7.2 to 7.4. It should be sealed with an impervious seal such as petrolatum, which should be overlaid within a few minutes after the transfer of the catgut. Before inoculation into the medium the catgut should be washed as free as possible from the suspending fluids, which must be further neutralized with chemicals. The heaviest strands of catgut from each batch should be selected for the test. After inoculation, incubation should be carried on for a minimum of fifteen days without evidence of growth before the batch is liberated for sale. This test may be used satisfactorily by catgut firms and by hospital laboratories.

Tennessee State Medical Assn. Journal, Nashville

24: 41-80 (Feb.) 1931

Wounds of Scalp and Face. B. S. Rhea, Lebanon.—p. 41.
History of Refractions and Refracting Lenses. S. Lawwill, Chattanooga.—p. 43.
Congenital Hypertrophic Pyloric Stenosis: Ten Cases. B. Brooks, Nashville.—p. 48.
Broncho-Esophagoscopy: 100 Cases. H. Wood, Nashville.—p. 56.
History and Pathogenesis of Glaucoma. S. H. Long, Chattanooga.—p. 60.
Perforation of Nasal Septum in Manufacture of Calcium Arsenate. W. D. Stinson, Memphis.—p. 65.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

12: 1-56 (Feb.) 1931

*Bile Solubility of Pneumococcus: Chemical Structure of Various Bile Salts. A. W. Downie, L. Stent and S. M. White.—p. 1.
*Fractionation of Antivaccina Serum. G. M. Findlay.—p. 9.
Effect of Subcutaneous Injections of Trypsin on Blood Sugar and on Insulin Action. O. B. Buckley.—p. 13.
*Simultaneous Infection of Monkey with Viruses of Poliomyelitis and Vaccinia. E. W. Hurst and R. W. Fairbrother.—p. 17.
*Absorption of Diphtheria Antitoxin. A. T. Glenny, A. G. Hamp and M. Llewellyn-Jones.—p. 21.
*Quantitative Aspects of Immunity Reactions: Precipitin Reaction. J. Marrack and F. C. Smith.—p. 30.
Relation Between Fowlpox (Epithelioma Contagiosum) and Avian Diphtheria. I. J. Kligler and M. Aschner.—p. 35.
Recovery of Fowlpox Virus from Vaccines by Cataphoresis. I. J. Kligler.—p. 42.
*Resistance to Growth of Transplantable Tumors: Influence of Vital Staining on Induced Resistance. R. J. Ludford.—p. 45.
*Observations on Passive Immunity in Normal Subject Produced by Anti-pneumococcic Serums. J. M. Alston and D. Stewart.—p. 49.

Bile Solubility of Pneumococcus.—The preparation of various derivatives of bile acids is described, and tests of the lytic action of these on strains of pneumococci from various sources and of different serologic types have been carried out by Downie and collaborators. All normal strains of pneumococci tested, irrespective of type, were equally susceptible to the lytic action of the various bile salts. Of six rough strains tested, five were equally soluble, while the sixth was almost completely resistant. Comparative tests with various bile salts and sodium oleate indicate that there is no parallelism between lytic activity and the surface tension of solutions. Of the substances tested, saponin and the sodium salts of all the bile acids except dehydrocholeic acid and dehydrodeoxycholeic acid brought about lysis. The fact that the sodium salts of the various choleic acids were similar in their activity to sodium deoxycholate indicates that the former owed their activity to the deoxycholeic acid fraction. There would seem to be some correlation between the chemical structure and power to form additional compounds and the lytic activity of the various bile salts tested.

Fractionation of Antivaccina Serum. — Observations recorded by Findlay confirm those originally made by Béclère, Chambon and Ménard as to the relation between the globulin fraction of the serum of a rabbit immunized against vaccinia and the power of the serum to inactivate vaccinia virus; the antibody also resists dialysis. The experiments show that the flocculating antibody and the power to increase the phagocytosis of vaccinia virus are also associated with the globulin fraction of the serum. In this particular, therefore, vaccinia virus is similar to bacteria in that the immune body in bacterial diseases is usually associated with the globulin fraction of the serum. In vaccinia the greater part of the immune body appears to be associated with the euglobulin fraction; part, however, with the pseudoglobulin fraction. In antivaccinia immune serum prepared in the rabbit, the immune body responsible for the protective action of the serum, for the flocculation of vaccinia virus and for the action stimulating the phagocytosis of vaccinia virus is associated with the globulin fraction of the serum.

Infection of Monkey with Viruses of Poliomyelitis and Vaccinia.—It appears from experiments of Hurst and Fairbrother that infection with a highly virulent vaccine virus (neurovaccine) has no power to modify the nervous lesions of poliomyelitis; this is equally true whether the vaccine is injected directly into the brain or inoculated intradermally. If both viruses are administered intravenously, the resulting vaccinial reaction does not suffice to break down the hemato-encephalitic barrier and permit invasion of the nervous system by the poliomyelitis virus. Attempts to demonstrate an activation effect of vaccinia on a weak poliomyelitis virus were unsuccessful. In the application these negative observations to the problem of postexanthematous encephalomyelitis, it must be remembered that much other evidence is opposed to a participation of the poliomyelitis virus in its causation. All investigators, including the authors, have failed to obtain this virus from the brains of

patients succumbing to postvaccinal, measles or smallpox encephalomyelitis. In cases of typical poliomyelitis, occasional vessels in both the gray and the white matter of the cord may show a well marked extra-adventitial microglial exudate resembling closely that of postvaccinal encephalitis; it is only on staining by the Weigert-Pal method that the complete absence of demyelination clearly indicates the essential difference between the two processes. Nor has success attended the endeavors of those who have sought in England and in the Netherlands to establish an epidemiologic relationship between poliomyelitis and the demyelinating malady. In short, no definite evidence has been brought forward that under any circumstances can the poliomyelitis virus evoke lesions other than those usually associated with its activity. While it is unsafe to generalize from experience with one neurotropic virus only, the facts recorded make it unlikely that, if postvaccinal encephalitis is due to the activation of a latent neurotropic virus by vaccination, any virus hitherto isolated and studied is responsible for the nervous disease.

Absorption of Diphtheria Antitoxin. — Glenny and collaborators investigated the influence of such factors as concentration and total protein content on the rate of absorption of antitoxic horse serum in rabbits and guinea-pigs. They found that there is a considerable difference in the total amount of antitoxin absorbed into the blood stream by different guinea-pigs injected subcutaneously with the same amount of serum. No conclusions can be drawn from experiments on a limited number of animals. There is no significant difference between the amount of antitoxin absorbed, whether given diluted or undiluted. The rate of absorption of antitoxin depends on the amount of protein injected compared with the body weight of the animal. The amount of antitoxin absorbed in six hours may be reduced, by the addition of a great excess of protein, to about 25 per cent of that absorbed without such addition. The influence on the rate of absorption of the amount of protein injected is greatest when the latter is large in relation to the weight of the animal. The average concentrated therapeutic serum is absorbed at least as rapidly as unconcentrated serum containing the same number of units when small doses are injected and more rapidly when large doses are given..

Immunity Reactions.—Marrack and Smith describe experiments that show that the amount of precipitate obtained when antigen (horse serum pseudoglobulin) and antibody (rabbit serum) were mixed in optimum proportions was relatively independent of the condition under which precipitation took place. The addition of nonspecific proteins had no effect, and the effects of variation in the concentration of electrolytes and temperature at which the flocculation took place were appreciable only when the mixture of antigen and antibody was much diluted. In previous papers on diphtheria toxin-antitoxin floccules they maintained that the fact that the amount of floccules was independent of conditions, particularly of the presence of nonspecific protein, indicated that the floccules consisted only of the specific reacting substances. The similar results obtained with a different type of immunity reaction greatly strengthen this point of view. If their interpretation of the effect of barium chloride on the amount of precipitate obtained when antigen was in excess is correct, it is impossible to regard the supernatant fluid as a saturated solution of the antigen antibody compound and apply the laws of mass action on this supposition.

Resistance to Growth of Transplantable Tumors. — Ludford immunized a batch of mice by injecting embryo skin in the right axilla. These were divided into two groups. The mice of one group were vitally stained a week after the inoculation of the embryo skin. At the end of the second week both groups, together with a set of controls, were inoculated in the left axilla with a transplantable adenocarcinoma. It was found that vital staining in some way induces changes in the organism, so that the immunity induced by the inoculation of mouse embryo skin to the transplantation of tumors is broken down. The tumor cells fail to stain vitally with trypan blue, but there occurs an intense staining of the cells of the reticulo-endothelial system and also of the cells of the connective tissues (mesenchyme-cell system). It seems most probable that vital staining modifies the local cellular reaction in the connective tissues that occurs in the immunizing process, in some manner, so as to affect the general reaction of the host to the inoculated tumor cells.

Immunity Produced by Antipneumococcic Serums. — According to Alston and Stewart the bactericidal power of the blood and the protective action of the serum may be greatly increased for at least seventy-two hours as regards types I and II pneumococcus by the injection into a "normal" uninfected person of a therapeutic dose of a preparation of serum containing immune bodies against those two types of pneumococcus. The validity of the results is checked by the lack of change in the bactericidal power of the blood of the subjects against the type III organism, and the smaller or negligible increase in bactericidal power of blood or protective action of blood serum when the injection given was a fraction of a therapeutic dose of other preparations of immune serum. The results with the latter preparations are included for purposes of such control.

British Journal of Radiology, London

4: 49-96 (Feb.) 1931

Experiments on Cathode Rays. G. P. Thomson.—p. 52.
Dangers of Specialization in Medicine. A. E. Barclay.—p. 60.
Chondro-Osteodystrophy: Roentgenographic and Clinical Features of Child with Dislocation of Vertebrae. J. F. Brailsford.—p. 83.

British Medical Journal, London

1: 295-336 (Feb. 21) 1931

Domain of Orthopedic Surgery. R. Jones.—p. 295.
Case of Pituitary Tumor. C. C. Elliott and D. P. Marais.—p. 297.
*Manipulative Reduction of Crush Fractures of Spine. R. W. Jones.—p. 300.
*Clinical Value of New Reflex in Chorea. G. A. Stephens.—p. 303.
Pyuria and Bacilluria in Children. J. N. Cumings.—p. 305.
Therapeutic Evaluation in Treatment of Syphilis. E. T. Burke.—p. 306.

Manipulative Reduction of Crush Fractures of Spine. —Jones records a new method of reducing crush fractures of the spine, safe enough and simple enough to be susceptible of universal application and of giving successful results in the hands of any practitioner who knows the rudiments of plaster work. It has the value of requiring no anesthetic, no apparatus, and no skilled assistance, and can be applied as effectively in a house as in a fully equipped hospital. Two tables are arranged end to end, with a space between slightly greater than the length of the patient's trunk. The front table is raised on blocks or chairs so that it is about two feet higher than the other; although not essential, it is an advantage to use an operating table of adjustable height, so that the hyperextension can be attained gradually by screwing up the table after the patient is in position. Throughout treatment, flexion of the spine must be avoided. The patient is therefore lifted face downward on the lower table, and a double layer of stockinet pulled over the trunk and stitched over the shoulders and beneath the perineum. The spinous processes and the iliac crests may be further protected by small pads of adhesive felt, but it is essential that the plaster should fit closely; bulky padding with wool or felt is to be avoided. A closely fitting woolen bathing costume is an excellent substitute. The patient is then assisted into such a position that he is gripping the edge of the higher table with his abducted arms, the head resting on a small pillow. The lower table supports his lower limbs as high as the upper thigh, but between the groins and the neck there is no support. In this position he is unable to prevent his spine from gently sagging into full hyperextension. The plaster is applied at once and is well molded to the curve of the spine, the sacrum and the iliac crests. The rubbing in of layer after layer of plaster gives just sufficient pressure to insure that the normal limit of hyperextension has been reached; beyond this no manipulation of any sort is employed. The plaster should extend up to the neck and, although it may be cut out below each axilla to allow free arm movement, none must be removed from the front of the thorax. It extends well over the sacrum and down to the level of the trochanters and symphysis pubis, with a small area cut out over each groin to allow flexion of the hips. As soon as the plaster is dry the patient is encouraged to move about in bed, and is turned frequently to avoid pulmonary congestion. Wasting and hypotonicity of the spinal musculature must be avoided. From the second or third day in uncomplicated cases,

definite exercises for the erector spinae are practiced at regular intervals. The patient should lie prone and lift the head from the bed against resistance. Each lower limb should be lifted with the knee straight by hyperextending the hip. These exercises involve energetic contraction of the erector spinae, and despite the plaster jacket a patient can maintain a better muscular tone in this way than he could if any amount of massage and electrical treatment were possible. After ten days the patient may get up and walk for increasing intervals. This is an essential part of the treatment, not because it still further assists in maintaining muscular tone and establishes the free circulation which is essential for rapid union, but because it restores the patient's mentality to normal. The sooner a man is dispossessed of the notion that "his back is broken" and that he "will never walk again," the more certainly is subsequent functional disturbance avoided. Protection of the vertebra is necessary for four months. If exercises are being constantly practiced, the plaster should be retained for the whole of this time. After sixteen weeks, movements of the spine itself are practiced and if a normal musculature and a normal circulation have been maintained there will be no difficulty in restoring full movement. Manipulation to break down intermuscular adhesions will not, as a rule, be necessary. Within six months he should be capable of resuming his normal occupation.

Clinical Value of New Reflex in Chorea.—During a recent investigation of chorea, the attention of Stephens was arrested by the dorsal reflex. The first case in which he observed it was that of a boy, aged 8, who had a red oval patch, about 6 inches long, over the hip joint on which he had been lying. This patch was hypersensitive, but as the area of this abnormal condition extended higher up the boy's back it was obvious that the redness was due to pressure and not to a trophic lesion. On both sides of the spine, hyperesthesia was found extending as far up as the third dorsal vertebra and down to and including the area supplied by the second sacral nerve. In addition to hypersensitiveness there was also a marked superficial reflex, the trapezius, latissimus dorsi and gluteus muscles responding readily when the overlying skin was pricked lightly with a pin. The nerve supply of this hypersensitive area is the third to the twelfth thoracic, the lumbar, and the first and second sacral nerves. This reflex can be demonstrated in nearly every child suffering from chorea; it does not seem to be dependent in any way on heart disturbance, because (1) it occurs in chorea patients whether the heart is affected or not, and (2) it is not found in patients suffering from acute rheumatism with acute carditis.

Edinburgh Medical Journal

38: 73-144 (Feb.) 1931

Regeneration of Peripheral Nerves. J. A. Hannah.—p. 73.
*Effect of Acidic and Basic Diets in Chronic Nephritis. D. M. Lyon, D. M. Dunlop and C. P. Stewart.—p. 87.
*Detection and Estimation of Lactose in Urine. C. P. Stewart and R. M. Gray.—p. 109.
Evolution of Modern Medicine: Medical Research. L. S. P. Davidson.—p. 113.
Retrospect and Prospect. G. L. Gulland.—p. 126.

Acidic and Basic Diets in Chronic Nephritis.—Lyon et al. state that in cases of chronic nephritis of the azotemic type the administration of a basic diet brings about clinical improvement, whereas an acid diet either fails to cause improvement or exacerbates the condition. This finding is not due to the amount of protein contained in the diets, since this was kept constant throughout. The improvement shown clinically or otherwise is paralleled by variations in the chemical composition of the blood and the urine. Preliminary results indicate that the essential difference between the diets probably lies in their acidic or basic qualities and not in the chemical composition of the proteins used.

Lactose in Urine.—To overcome the drawbacks of the existing tests, Stewart and Gray have elaborated a method for which they claim increased simplicity and reliability, together with the power of determining the actual amounts of dextrose and lactose in presence of each other with an accuracy sufficient for clinical purposes. It does not completely identify the lactose (maltose would act in a similar manner), but the fact of lactose being present can be settled by the mucic acid test if absolute proof is desired, though maltose can really be excluded as a possibility when dealing with a urine from a pregnant or lactating woman. The technic which they employ is as follows: The total sugar in the urine is determined by Cole's method, and the concentration is calculated as dextrose. To determine the concentration of sugar as dextrose after hydrolysis, 20 cc. of urine is mixed with 2 cc. of concentrated hydrochloric acid and boiled for fifteen minutes, evaporation being allowed to proceed. The solution is then cooled, an amount of sodium hydroxide equivalent to the acid is added, and the volume is made up to the original 20 cc. with distilled water. (It may, of course, be made to any convenient volume, and the dilution allowed for in the subsequent sugar determination.) Ten cubic centimeters of this solution is used for the determination of sugar, the method being exactly the same as in the case of the original urine. With this technic, experiment has shown that there is no appreciable destruction of dextrose during the boiling with acid, that lactose, calculated as dextrose, gives half the correct figure before hydrolysis but the correct one after hydrolysis, and that mixtures of the two sugars can be successfully estimated in aqueous solution or in urine.

Indian Journal Medical Research Memoirs, Calcutta

19: 1-96 (Jan.) 1931

Indian Plant Remedies Used in Snake-Bite. K. S. Mhaskar and J. F. Caius.—p. 1.

Journal of Mental Science, London

76: 599-955 (Oct.) 1930

History and Progress of Littlemore Hospital. T. S. Good.—p. 602.
"After-Care" and Other Aspects of Social Service as Adjunct to Mental Treatment. J. R. Lord.—p. 622.
Mental Changes in Cardiac Disease. A. G. Gibson.—p. 632.
Influence of Functional Circulatory Disturbances on Central Nervous System.—p. 641.
Alzheimer's Disease. D. K. Henderson and S. H. Maclachlan.—p. 646.
Therapeutic Effect of Assisted Respiration in Established Cases of Dementia Praecox. G. F. Peters.—p. 662.
Character from Biologic Point of View. J. Piltz.—p. 668.
Source of Excitation in Late Rigidity, Manic-Depressive Syndrome and Epilepsies and Mechanism of Recurrence. G. D. Robertson.—p. 677.
*Cerebrospinal Fluid Pressure in Hydrocephalus and Microcephalus. G. de M. Rudolf.—p. 692.
Diagnosis of Psychoses of Young Adults. I. Skottowe.—p. 696.
Hunger and Appetite: Suggested Correlation Between Physiologic and Psychologic Processes. H. Weber.—p. 724.
Conditioned Reflex and Psychologic Analogues. A. Wohlgemuth.—p. 764.
*Protein Partition of Serum in General Paralysis of Insane: Treatment. W. Ogden.—p. 772.
*Psychobiologic Constitution of the Weak-Minded. E. B. Strauss.—p. 780.

Spinal Fluid Pressure in Hydrocephalus and Microcephalus.—The pressure of the cerebrospinal fluid in twelve adults with hydrocephalus was found by Rudolf to be higher than in twelve adults with microcephalus. Although some patients in the hydrocephalic series gave readings higher than normal, others gave readings lower than normal. No patient with microcephalus gave readings higher than normal, although some gave readings lower than normal. The highest readings occurred among the male hydrocephalic patients, while the lowest readings occurred among the female microcephalic patients. In both groups, women tended to give lower readings than men.

Protein Partition of Serum in Dementia Paralytica.—Ogden states that in untreated dementia paralytica there is an apparent excess of serum protein with corresponding globulin increase. Following malaria therapy there is no discernible increase of serum protein, but the albumin-globulin balance is disturbed, with an apparent increase of globulin. Pyrexial therapy induced medicinally appears to affect the serum protein in exactly the same way as malaria. Tryparsamide treatment in dementia paralytica has no obvious effect on the total serum protein or the albumin-globulin partition. There is no apparent relation between any altered state of the serum protein and the intensity of the Wassermann reaction.

Constitution of the Weak-Minded.—One hundred and ten cases of endogenous oligophrenia in males over the age of puberty, and presenting on casual inspection a normal physical exterior, were examined by Strauss. Anthropometry and somatoscopy showed that in 100 per cent of these cases the basal physical habitus was complicated by lesser or greater degrees of dysplasia. The most prominent dysplastic stigmas

were of a dysgenital nature. The degree of intellectual defect in each case was evaluated and tabulated against physique and temperament. The results suggest that there is no correlation between intelligence and either of these two factors. An investigation into the family histories of the patients reveals the extreme frequency of morbid inheritance in oligophrenia. The existence of defects of various kinds in the parents is so striking that it seems likely that such defects are to be reckoned among the determinant or causal factors in the genesis of oligophrenia. Each patient was assigned to a temperamental group. The results showed that the ordinary physique-temperament ratio does not apply in these cases, temperaments that are apparently cyclothyme-cycloid appearing in excess in persons with anomalous physique. In order to explain this anomaly a phylogenetic theory of the genesis of temperament is tentatively offered in outline. According to this hypothesis, the patients presenting apparently cyclothyme or cycloid temperaments are in reality fixated at an undifferentiated psychic level, which is normal in babies, in very young children, and in adults of backward races. These temperamental categories would possibly be better designated as protocyclothyme and protocycloid.

China Medical Journal, Shanghai

45: 101-189 (Feb.) 1931

Radium Therapy. J. H. Montgomery.—p. 101.
The Elderly Primipara. J. P. Maxwell and A. I. H. Wong.—p. 113.
Pharmacologic Standards for Hormone Preparations of Chinese Pharmacopeia. C. Pak and B. E. Read.—p. 125.
Production of Agglutinins for Typhoid Bacilli by Intrahepatic Vaccination. I. Yun.—p. 133.
Schick Test on Chinese Students in Shanghai: 1,698 Cases. D. G. Lai.—p. 139.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 35-95 (Jan. 26) 1931

Peripheral Paralysis in Two Men Having Undergone the Same Asphyxia by Carbon Monoxide. G. Guillain, R. Thurel and H. Desoille.—p. 36.
*Use of Caffeine in Treatment of Inhibition of Respiratory Center. L. Binet and A. Arnaudet.—p. 42.
*Intravenous Injections of Quinidine in Cardiac Therapeutics. T. Padilla and P. Cossio.—p. 46.
Auriculoventricular Dissociation by Depression of Sinusal Automatism. T. Padilla and P. Cossio.—p. 49.
Diagnosis of Localization of Infarct of Myocardium by Modifications of Electrocardiogram. T. Padilla and P. Cossio.—p. 54.
Case of Cryptogenic Aplastic Anemia. P. N. Deschamps and E. Mourrut.—p. 59.
Febrile Acute Form of Cryptogenic Aplastic Anemia. P. N. Deschamps and P. Baize.—p. 63.
Aneurysm of Thoracic Aorta Simulating Primary Cancer of Lung. P. N. Deschamps and E. Mourrut.—p. 68.
Primary Cancer of Lung of Acute Development and at First Pseudopneumonic. P. N. Deschamps and S. Vialard.—p. 73.
Circumscribed Pulmonary Form of Malignant Lymphogranulomatosis. G. Albot, P. Decourt and A. Soulas.—p. 77.
Case of Chronic Myelogenic Leukemia with Terminal Attack of Cutaneous Tumors and Acute Leukemia. P. Emile-Weil and P. Isch-Wall.—p 84.
Jacksonian Epilepsy Preceding Cerebral Softening. R. Sorel.—p. 88.
Treatment of Algias in Tuberculous Patients. J. Paraf.—p. 91.

Caffeine in Treatment of Inhibition of Respiratory Center.—By means of experiments on dogs whose heads were isolated and perfused, and whose respiration was retarded or arrested by injections of morphine or codeine, Binet and Arnaudet show that caffeine injected into the carotid artery is capable of reestablishing the inhibited respiration. While they do not wish to express a preference for any one medicament in the treatment of inhibition of the respiratory center, they feel that the excellent results secured with caffeine should be kept in mind.

Intravenous Injections of Quinidine in Cardiac Therapeutics.—Padilla and Cossio show that excellent results may be obtained by the use of quinidine in the treatment of cardiac disturbances. It is especially efficacious in paroxysmal tachycardia since it lengthens the refractory period and reestablishes a normal rhythm, and in auricular flutter because it diminishes the ventricular frequency by augmenting the time of auriculoventricular conduction. Chemically pure quinidine sulphate should be used in intravenous injections, given in doses of 0.5 Gm. dissolved in 10 cc. of physiologic solution. The injections should be given slowly, in order to avoid local and general reactions. The patient should be in a horizontal position.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

57: 83-157 (Feb. 7) 1931

Isolated Fractures of Tibia with Luxation of Fibula. C. Dujarier.—p. 92.
Case of Hydrarthrosis Treated by Synovectomy. E. Sorrel.—p. 92.
*Acute Intestinal Invagination in Nurslings: Treatment by Barium Enemas. H. Fruchaud and Peignaux.—p. 95.
Hydatid Cysts of Lung: Ten Cases. J. Abadie.—p. 124.
Surgical Treatment of Exophthalmic Goiter. M. Labbé and Azerad.—p. 136.
Ascites Cured by Omentopexy. J. Fiolle.—p. 141.
Several Points of Operative Technic in Diabetes: Insulinotherapy: Insulinoresistance. J. de Fourmestraux.—p. 144.
Synovectomy for Tuberculosis Made by Transpatellar Approach. P. Alglave.—p. 148.
Undetected Fracture of Vertebral Column: Multiple Fractures of Costal Cartilage with Secondary Ossification. E. Sorrel.—p. 153.

Treatment of Acute Intestinal Invagination in Nurslings.—Fruchaud and Peignaux report six cases of acute intestinal invagination in nurslings in which the treatment consisted of enemas of a barium solution. They have used this treatment in fourteen cases. In nine cases the injections produced disinvagination and a complete cure. In three cases the injections revealed the necessity for immediate operation, which was practiced with excellent results. In one case the roentgen examination left a doubt as to the completion of the disinvagination and an operation was performed, which revealed that the barium treatment had been successful. In one of the earliest cases a misinterpretation of the roentgen image led to postponing until too late an operation that would have resulted in a cure if practiced immediately. The authors feel that the first method of treatment in intestinal invagination among nurslings should be injections of barium accompanied by roentgen examination. The evolution of the condition among nurslings is acute and rapid, so that it is usually detected sufficiently early to allow the treatment to succeed without surgical intervention, which is extremely dangerous for young children. In a large proportion of cases among nurslings the condition is not caused by tumors or intestinal lesions that require surgical intervention. The authors point out, however, that the barium treatment should not be used unless there are surgical facilities at hand, since immediate operation is necessary if the preliminary treatment is unsuccessful.

Nourrisson, Paris

19: 1-64 (Jan.) 1931

Modern Hospital for Children. J. Renault.—p. 1.
*How to Administer to Nurslings Cow's Milk Extremely Feebly Diluted. G. C. Bentivoglio.—p. 22.
Treatment of Choleriform Diarrhea in Nurslings. A. B. Marfan.—p. 40.
Vaccination with B C G in Crusade Against Infantile Tuberculosis. A. Wallgren.—p. 53.

Addition of Acacia to Cow's Milk for Nurslings.—Because of the unsatisfactory results obtained by the dilution of cow's milk with sugared water, Bentivoglio endeavored to solve the problem of artificial feeding of nurslings by giving to whole milk the advantages presented by dilution without resorting to actual dilution. The chief reason for dilution is to reduce the amount of casein. The dilution, however, has more than a quantitative effect; its physiochemical action is to modify the manner of coagulation of the casein by causing it to form smaller, more porous and less compact particles. The author decided, therefore, to add to cow's milk a protective colloid (such as is furnished in human milk by lactalbumin) in order to modify the colloidal condition of the casein. By the addition of acacia to milk he has obtained excellent results in the feeding of a number of nurslings. The proportion used ranges from 3 to 3.5 Gm. of acacia for 100 Gm. of milk in the first month to 2 Gm. in the sixth month. The powder is usually dissolved in water in a 10 per cent solution before being mixed with the milk. It is advisable to mix with the acacia solution a small quantity of sodium bicarbonate or of a weak solution of calcium hydroxide, especially during the first few months. The preparation is simple and inexpensive, as the acacia solution may be prepared each morning and mixed with the milk, and the bottles kept in the refrigerator until they are needed. The author realizes that cow's milk prepared in this way still contains a greater proportion of salts and proteins than is desirable, but he feels that the slight possibility of complications from this source is preferable to the deficient nutrition produced by diluted preparations.

Paris Médical

1: 113-144 (Feb. 7) 1931

Roentgen Examination of Gastroduodenal Mucosa. R. Ledoux-Lebard and J. G. Calderon.—p. 113.
Early Detection of Pulmonary Tuberculosis by Systematic Roentgen Examination. L. Delherm and P. Thoyer-Rozat.—p. 117.
*Pyloroduodenal Roentgenographic Syndrome of Certain Forms of Chronic Appendicitis. G. Maingot.—p. 119.
Roentgenography of Pleural Calcifications. P. Lamarque and P. Bétoullières.—p. 129.
Evolution of Roentgen Diagnosis. Dioclès.—p. 134.
Painful Intrathoracic Calcified Nodules: Treatment by Roentgen Rays. Morel-Kahn and P. H. Codet.—p. 138.
Notch in Esophagus from Mitral Stricture and Certain Cardiac Dilatations. V. Paschetta.—p. 140.

Pyloroduodenal Roentgenographic Syndrome of Chronic Appendicitis.—Maingot points out that in certain cases symptoms such as epigastric pain, nausea, pyrosis, and slow and difficult digestion which at first suggest a diagnosis of pyloric or duodenal disturbance are in reality caused by chronic appendicitis. Roentgen examination is the only means of revealing the primary lesion. In such cases, therefore, the examination should not be limited merely to gastric and peripyloric exploration especially if, in a dyspeptic person, one does not find a lucuna or Haudeck's niche, a careful exploration of the right iliac fossa is indicated, since the examination of the ileocecal region is the only means of detecting an appendicitis that presents these gastric and duodenal manifestations. The author gives a chart showing in detail the various gastric and duodenal symptoms produced in this way.

Revue Française d'Endocrinologie, Paris

8: 385-468 (Oct.) 1930

*Vascular Pedicles of Suprarenals. M. Bleicher.—p. 385.
Endocrine Function of Salivary Glands. M. Cahane and F. Cahane.—p. 398.
Treatment of Exophthalmic Goiter by Extract of Myxedematous Goiter. Jaquerod.—p. 407.

Vascular Pedicles of Suprarenals.—Bleicher points out the importance of a satisfactory hemostasis, and therefore of an accurate knowledge of the vascular system of the gland, in suprarenal operations. With this in view he gives a detailed description of the typical arterial distribution and of numerous modifications and irregularities that he has observed through systematic study of the question. He shows that although the arterial system is extremely complex and varies greatly in different persons there are three distinct areas in which all the arteries and veins come in contact with the gland. The series of arteries, forming a vascular ensemble, corresponding to each of these areas, may be considered as a vascular pedicle. The three pedicles are as follows: 1. A superior arterial pedicle located in the upper extremity and the adjoining portion of the inner or convex surface of the gland. 2. A middle pedicle, in the middle third of the inner surface of the gland. 3. An inferior pedicle in the lower extremity of the gland. If these three pedicles are located by the surgeon and compressed with three curved forceps, a perfect hemostasis may be secured. The author also points out that the pedicles, especially the superior and inferior ones, are excellent points of support, permitting an easy and relatively solid prehension of the suprarenals in the course of a suprarenalectomy.

Revue d'Orthopédie, etc., Paris

18: 1-104 (Jan.) 1931

*Traumatic Lipo-Arthritis of Knee. L. Diamant-Berger and A. Sicard.—p. 5.
Traumatic Luxations of Knee. P. Guedj.—p. 29.
Obstetric Paralysis of Upper Limb. H. L. Rocher.—p. 45.

Traumatic Lipo-Arthritis of Knee.—Diamant-Berger and Sicard report three cases and review the literature in order to show that there is an undeniable relationship between reactions in the fatty tissue of the knee, whether localized in the fatty subpatellar mass and the adipose ligament (Hoffa's disease), in a synovial fringe (solitary or extracapsular lipomas) or generalized in the form of arborescent or intracapsular lipomas. In all these forms the same macroscopic and microscopic lesions and the same clinical symptoms are observed. The authors attribute the various developments to an inflammation caused by a local hyperemia, which may be of traumatic origin or may be the result of a chronic infection such as tuberculosis. They point out also that the reactions in the fatty tissues of the knee are manifestations of a general process that may be observed in other parts of the organism; for example, they note certain analogies between the reactions of the omentum and those of the adipose ligament of the knee. They designate this entire group of reactions in the periarticular fatty tissues of the knee as lipo-arthritis.

Schweizerische medizinische Wochenschrift, Basel

61: 97-120 (Jan. 31) 1931. Partial Index

Specificity of Antigens and Variability of Bacteria. A. Grumbach.—p. 97.
Experimental and Human Simultaneous Polypathia. S. Marbais.—p. 101.
Postoperative Ileus Caused by Adhesions. R. Patry and W. Heer.—p. 103.
*Estimation of Urea Concentration in Blood: Method for General Practitioner. G. R. Constam.—p. 105.
*New Method for Determination of Cholesterol Content of Blood. A. Bloch.—p. 108.

Estimation of Urea Concentration in Blood: Method for General Practitioner.—Constam points out that the determination of the urea concentration in the blood is helpful in the estimation of the renal function and in the prognosis of certain renal disorders. For this reason he directs attention to the method recommended by Hench and Aldrich, which because of its simplicity, inexpensiveness and rapidity may be performed by the general practitioner. With the aid of a simple apparatus and of preservable reagents, the test can be completed in ten minutes and the results are sufficiently accurate for practical requirements. The principle of the test is dealbuminization of the blood by means of trichloracetic acid, titration of the nitrogen-containing compounds of the dealbuminized blood by means of corrosive mercuric chloride, and determination of the excess, free mercury by means of anhydrous sodium carbonate. The required reagents are a 10 per cent solution of trichloracetic acid, a 5 per cent solution of corrosive mercuric chloride and a 7 per cent solution of anhydrous sodium carbonate. The author describes the technic of the test and states that the urea content of the normal blood is between 20 and 40 mg. per hundred cubic centimeters. However, as the result of a diet that is rich in proteins, it may increase to 80 mg. while the functional capacity of the kidneys remains unimpaired. In cases of polycythemia and leukemia as well as during the hyperuricemic stage of gout and perhaps also in pernicious anemia the method of Hench and Aldrich is not practical. The unfavorable prognosis, which is indicated by high urea content during chronic renal disorders, cannot be applied to the high urea content in cases of acute renal disturbances. It is also pointed out that fever, poisoning and considerable loss of fluids or salt, due to continuous vomiting or diarrhea, may lead to increased urea concentration in the blood, while the renal function is not impaired.

Method for Determination of Cholesterol Content of Blood.—Bloch describes a new method for isolation of the cholesterol of the blood, which he discovered in the following manner: If the blood cholesterol is determined according to Autenrieth-Funk it occasionally happens that following the Liebermann-Burchard reaction the green coloration of the solution shows yellowish brown nuances, which make the colorimeter readings more difficult. The author thought that if instead of the 25 per cent potassium hydroxide solution a milder substance was used for saponification, this could perhaps be avoided, and he used 10 per cent baryta water. In the further course of the experiment it was found that the barium carbonate floccules had absorbed the entire cholesterol content and thus the cholesterol could be isolated. The technic is described in detail. Comparative tests revealed that the quantities detected with this test tally with those that are detected by Bloor's method, by the Autenrieth-Funk test or by gravimetry. The author further shows that the albumin precipitate, which remains following dealbuminization of the blood according to Folin, may likewise be used for the quantitative determination of the cholesterol. He also stresses that it is better to use blood serum for the tests than whole blood, for the blood pigments make the colorimetric reading more difficult.

Archivio Italiano di Chirurgia, Bologna

28: 1-104 (Jan.) 1931

Experimental Actinomycosis of Liver and Reticulo-Endothelial System. F. Melina.—p. 1.
Anatomic Study on Upper Hypogastric Plexus of Hovelacque. C. Chianello.—p. 34.
*Development and Trophism of Bones of Limbs in Relation to Ligation of Principal Vessels. E. Benassi.—p. 49.
*Behavior and Importance of Glutathione in Ether Narcosis and in Other Forms of Anesthesia. E. Ruggieri.—p. 69.
Anterior Laterоterminal Gastroduodenostomy in Resections by First Method of Billroth. G. Pototschnig.—p. 88.

Development of Bones of Limbs After Ligation of Principal Vessels.—Benassi performed, in growing rabbits, ligation of one of the external iliac arteries or one of the external iliac veins, or of the two simultaneously, and followed the growth of the skeleton with frequent roentgenograms and with microscopic examinations of bone segments from animals killed from one day to three months after the intervention and found that the various types of vascular ligation do not produce any changes in the skeleton other than a temporary congestion, more evident in the case of ligation of the vein. In the adult animals, the ligation of one of the external iliac arteries, or of one of the external iliac veins, or of the artery and the vein simultaneously, had likewise no manifest effects on the trophism of the skeleton but caused only transient congestion of the vessels.

Behavior and Importance of Glutathione in Anesthesia.—Ruggieri studied the behavior of glutathione in the blood in ether anesthesia and concluded that, through the effects of the ether, it undergoes a notable diminution. He advances the hypothesis that such diminution constitutes an important factor in the pathogenesis of postoperative diseases. He thinks that the diminution observed may be associated with the acidosis and with the hyperglycemia of anesthesia.

Policlinico, Rome

38: 77-112 (Jan. 19) 1931. Practical Section

*Dolichocolon in Relation to Appendicitis. M. Loreti.—p. 77.
Syndrome of Pallidal System. G. Dragotti.—p. 81.

Dolichocolon in Relation to Appendicitis. — Loreti describes three typical cases of patients with dolichocolon, who presented an appendicular symptomatology and were operated on by appendicectomy. As the symptomatology present before the intervention continued, later roentgen and clinical examinations revealed the true condition. The author discusses dolichocolon in relation to appendicitis and shows how the diagnostic error may easily occur. He recommends a detailed anamnesis in doubtful cases and a thorough roentgen examination by clysma and by means of a paste by mouth.

Riforma Medica, Naples

47: 1-40 (Jan. 5) 1931

Echinococcus Cyst at Base of Left Lobe of Liver. D. Taddei.—p. 3.
Asthma and Pregnancy. H. Vignes.—p. 6.
*Rapid Method of Titration of Iso-Agglutinating Serums. G. Pecorella and C. Angeleri.—p. 8.

Rapid Method of Titration of Iso-Agglutinating Serums.—Pecorella and Angeleri describe a simple method used by them by means of which it is possible to ascertain whether or not a given serum is sufficiently active to be employed in the determination of blood groups. They subject the blood serum of persons of groups II and III to a preliminary microscopic test in a hanging drop with corresponding erythrocytes, eliminating the serums that in the accustomed proportions do not give an agglutination at 37 C. The iso-agglutinating titer of positive serums is tested thus: with an ordinary pipet for red corpuscles one aspirates the serum up to the mark ½; then the blood of a person of the proper group is aspirated up to the mark 1; then one aspirates up to 101 a 4.5 per cent solution of sodium citrate. The serum is thus diluted a hundredfold. The mixture is thoroughly shaken and then placed in a tube for hemolysis. This is done for the same serum with numerous persons of the same group, for the purpose of testing the potency of the serum with respect to numerous corpuscles. The tubes are put in a thermostat for an hour at 37 C. and then a microscopic examination in the hanging drop is done. Those that present evident agglutination are considered active from the point of view of their employment for the practical determination of blood groups. Using a pipet for white corpuscles and the same technic, the amount of panagglutinins is determined. The mixtures kept under refrigeration for an hour should show no trace of agglutination.

Semana Médica, Buenos Aires

38: 1-64 (Jan. 1) 1931. Partial Index

Physical Therapy in Acute Anterior Poliomyelitis. A. M. Marque.—p. 2.
Hypospadias of Penis: Plastic Reparation of Urethra by Marion's Method. J. Salleras.—p. 10.
Purulent Generalized Peritonitis Caused by Acute Appendicitis Complicating Pregnancy: Normal Delivery Eleven Days After Appendectomy: Recovery. T. Gioia.—p. 12.
Autochthonous Undulant Fever in Province of Mendoza, Argentina. E. M. Fernández Ithurrat.—p. 14.
Ocular Lesions in Nervous Leprosy: Case. E. Adrogué and J. A. Sená.—p. 16.
*Sodium Thiosulphate in Treatment of Poisoning with Corrosive Mercuric Chloride. J. C. González Podestá and R. E. Torviso.—p. 19.
Psychoanalytic Interpretation of Dreams in Case of Dispossession Syndrome in Psychopathic Patient. F. Gorriti.—p. 24.
Congenital Diaphragmatic Hernia in the New-Born: Case. V. Giustinian and A. Antonelli.—p. 27.
Idem. V. Giustinian and M. D. Estiú.—p. 35.
Prophylaxis of Tuberculosis as Best Weapon in Antituberculosis Crusade. H. Magliano.—p. 36.

Sodium Thiosulphate in Treatment of Poisoning with Corrosive Mercuric Chloride. — González Podestá and Torviso say that at present there is not a treatment which may be considered as of real efficacy in poisoning caused by corrosive mercuric chloride. During the last year and a half they have treated twenty-one cases of this kind of poisoning with intravenous injections of a 30 per cent solution of sodium thiosulphate. The injections were given at doses of from 10 to 20 cc. twice a day during five to ten days (according to the evolution of the case). The treatment is harmless. The doses, however, should be large and should be repeated since small doses are ineffective. The authors' patients were seen several hours after the intake of the poison and the treatment produced recovery in 42 per cent of the cases. It is believed that earlier treatment may give better results. The authors say that in spite of the dysenteriform syndrome presented by the patients, the bowels are constipated. The poison in the colon irritates and ulcerates it, and causes a condition of spasm of the colon which prevents the necessary elimination of the feces. The patients should be given hyoscyamus and belladonna in castor oil to obtain a laxative effect. This part of the treatment is also highly important. The histories of the patients treated are briefly reviewed.

Deutsche medizinische Wochenschrift, Berlin

57: 133-174 (Jan. 23) 1931. Partial Index

*Carcinoma in Workers in Cork Brick Factories. O. Schürch.—p. 139.
Suggestive Modification of Specific Dynamic Action of Protein by Hypnosis. K. Grassheim and E. Wittkower.—p. 141.
Production and Purification of Tuberculin. E. Maschmann and E. Küster.—p. 143.
*Acute Encephalitis During Childhood. E. Holzmann.—p. 144.
Experiences with Symbiosis Serum (Canon) in Diphtheria. Medem.—p. 146.
Primary Nasal Diphtheria. A. Feller.—p. 148.
Mercury Dermatitis Following Medication with Mild Mercurous Chloride. E. Kaufmann and H. Rothschild.—p. 149.

Carcinoma in Workers in Cork Brick Factories.—Schürch reports the clinical histories of two men with cancer of the scrotum, both of whom had been employed in cork brick factories for more than ten years. In these factories bricks are made out of pulverized cork and coal pitch. The author points out that there is a certain analogy between the manufacture of cork bricks and of briquets, since pitch is used in both processes. Microscopic examination of the cancers in these two patients revealed squamous cell epitheliomas, the same type of cancers that develop in workers in briquet factories and sometimes designated as pitch cancers. The author asserts that the managers and workers in these cork brick factories were not aware of the fact that danger of cancer existed and there were no protective measures against the cancer noxae. In accordance with Teutschlaender, who investigated the cancer problem in briquet factories, the author emphasizes the following as the most important prophylactic measures: 1. The formation of

pitch dust should be prevented as much as possible. 2. Workers with a sensitive skin, with skin diseases, or those who have worked with pitch for a considerable time should not be employed in these factories. On jobs in which the exposure to pitch dust is especially pronounced, the workers should be frequently changed. A rotation of the workers would perhaps be advisable. 3. The workers should be informed about the dangers and about the protective measures. 4. Cleanliness and change of clothing should be encouraged. 5. Periodically, every three or four months, the workers should be given a medical examination, so that precancerous growths may be recognized early.

Acute Encephalitis During Childhood. — Holzmann asserts that, because of the manifold clinical manifestations, the differential diagnosis of encephalitis is extremely difficult. He describes two cases of encephalitis in children. In a girl, aged 7, the clinical aspect spoke for a meningitis of tuberculous character. However, the spinal puncture did not corroborate this diagnosis, because the pressure was not abnormally high, the albumin reaction was negative and the cellular elements were not increased. It was found that the sugar content of the cerebrospinal fluid was extremely high; namely, 285 mg. per hundred cubic centimeters. The normal sugar content of the cerebrospinal fluid ranges from 50 to 75 mg. per hundred cubic centimeters, and in tuberculous meningitis the sugar content of the fluid is even reduced. Because several investigators have noted an increased sugar content of the cerebrospinal fluid in cases of encephalitis, this case was diagnosed as encephalitis. Clinical symptoms which spoke for an encephalitis rather than for a meningitis were the accelerated pulse and the leukocytosis. The child recovered completely, and of especial interest is the fact that the nervous system is entirely intact. The second case history described by the author is that of a boy, aged 3, who showed the symptoms of a hyperkinetic form of encephalitis. In this case again the cerebrospinal fluid was found to contain excessive amounts of sugar but was free from albumin and showed no increase in the cellular elements. The patient died, and a necropsy was not performed. The author comes to the conclusion that the increased sugar content of the cerebrospinal fluid speaks for encephalitis, and he thinks that this symptom is valuable in the differential diagnosis. That a high sugar content of the cerebrospinal fluid indicates an unfavorable prognosis, as Hässler has stated, was not corroborated by the author's observations. It appears that the sugar content is especially high in cases in which respiratory disturbances are present; that is, in patients in whom the inflammation of the medulla oblongata is especially pronounced. In the first of the two cases Biot's respiration was noted, and in the second case deep respiration.

Klinische Wochenschrift, Berlin

10: 97-144 (Jan. 17) 1931

Causes of Icterus Neonatorum. K. J. Anselmino and F. Hoffmann. —p. 97.
*Disturbance in Regulation of Circulation: A New Symptom in Insufficiency of Anterior Lobe of Hypophysis. F. Schellong.—p. 100.
Immunity Processes in Syphilis. H. Kroó and N. von Jancsó.—p. 105.
Growth Forms and Virulence of Hemolytic Streptococci. H. Schottmüller. —p. 107.
Animal Experiments on Elimination of Iodine from Blood Following Administration of Tetiothalein Sodium in Normal and in Pathologic Conditions. H. Eitel and A. Loeser.—p. 109.
*Detection of Persons Who Transmit Hemophilia. E. Traum, G. Schaaff and H. Linden.—p. 111.
New Method for Preparation of Frozen Sections for Rapid Microscopic Examination. O. Schultz-Brauns.—p. 113.
Evaluation of Substitutional Preparations of Pancreas. E. Kaufmann.—p. 117.
Iodine Deficiency Theory of Goiter. J. Holst.—p. 118.

A New Symptom in Insufficiency of Anterior Hypophysis.—Schellong describes observations on four patients with hypophyseal insufficiency. The symptom to which he directs especial attention is a peculiar disturbance in the regulation of the circulation, which becomes manifest in collapse and fainting. The author points out that such conditions of weakness are mentioned in other case reports of hypophyseal cachexia, but they had never been completely explained. Because the attacks of fainting occur even after slight bodily exertion, the behavior of the blood pressure and of the heart action were tested during work. It was found that the blood pressure of these patients was not, as in normal persons, somewhat increased during exertion, but the systolic as well as the diastolic pressure was decreased, and the heart action did not show any changes. That this disturbance is not dependent on the height of the blood pressure during rest is proved by the fact that, even when the blood pressure had been increased by an injection of epinephrine, a considerable decrease followed the exertion. This regulatory disturbance in the circulation could be partially or wholly counteracted by the administration of preparations of the anterior lobe of the hypophysis. The author concludes that the hormone of the hypophysis influences the peripheral vessels. The decrease in blood pressure during bodily exertion in patients with hypophyseal insufficiency is probably a result either of a reduction in the peripheral resistance or of the abnormal dilatation of the peripheral vessels. That the atrophy of the anterior lobe of the hypophysis or that its insufficiency influences also the other endocrine glands has been proved by anatomic observations. The influence on other endocrine glands is the reason why one frequently sees the signs of pluriglandular insufficiency. However, in spite of the fact that weakness and fainting are observed also in suprarenal insufficiency, the author thinks that in hypophyseal cachexia the changes in the blood pressure are not due to a disturbance in the suprarenals. He cites two factors that speak against this: 1. The blood pressure during rest is usually normal and sometimes even increased. 2. Epinephrine is not effective in counteracting the regulatory disturbance.

Detection of Persons Who Transmit Hemophilia.—Traum and collaborators point out that the detection of females who transmit hemophilia while they themselves remain free from it has great significance. They direct attention to experiments by Opitz and Zweig, who found that the trypanocidal power of the serum of hemophilic patients and of their mothers is reduced. Some investigators corroborated these observations; others, however, obtained negative results. Because of these contradictory statements the authors made tests on members of hemophilic families. They describe the method employed in their experiments and report results. Their tests were made on thirty-seven persons, with four exceptions all members of hemophilic families. They reach the following conclusions: 1. The determination of the trypanocidal action of the serum cannot be considered a diagnostic aid for recognizing hemophilic persons or those who transmit the disease. 2. In a comparison of the coagulation time of the blood of those who do not transmit the disease and of those who do, it was found that in those who transmit hemophilia the coagulation time is slightly prolonged. 3. Schloessmann's hypothesis that in a family in which hemophilia is hereditary all the hemophilic persons and those who transmit the disease belong to the same blood group is not valid for all hemophilic families.

Medizinische Klinik, Berlin

27: 117-154 (Jan. 23) 1931

Endocrine Organs in Their Relation to Constitution. H. Rothmann. —p. 117.
Early Operation. E. Melchior.—p. 120. C'cn.
*Determination of Sedimentation Speed of Erythrocytes and Its Significance for Internal Medicine. H. Schulten.—p. 125.
Incorrect Diagnosis of Hemophilia. J. Flesch.—p. 127.
Fracture of Vertebra Caused by Jolt of Moving Motor Truck. M. Weisz. —p. 127.
Septic Endocarditis Caused by Micrococcus Tetragenus. F. Adel.—p. 129.
Hypersusceptibility to Medicaments. W. Ortloph.—p. 129.
*Duodenal Ulcer and Polyglobulism: Relation Between Functioning of Stomach and Erythrocyte Picture. F. Tuchfeld.—p. 130.

Determination of Sedimentation Speed of Erythrocytes.—After reviewing the history of the sedimentation reaction, Schulten discusses its theoretical and experimental foundations. He explains that the erythrocytes do not settle separately but first form smaller or larger clumps. The rapidity and the completeness of this clump formation is one of most important factors in the sedimentation. Some investigators are of the opinion that the formation of the aggregates depends on the electrical discharge of the corpuscles, which are negatively charged, whereas the serum colloids are positively charged. Because globulin and especially fibrinogen contain higher charges than albumin, blood containing large amounts of the first two constituents has a greater sedimentation speed. Of

theoretical and practical significance is the fact that a slanting position of the test tube accelerates the sedimentation. It has also been observed that the rapidity of the sedimentation is inversely proportioned to the number of erythrocytes. In anemia the sedimentation is therefore generally increased, whereas in polycythemia it is retarded. A high content of carbon dioxide as well as the presence of bile acids retards the sedimentation. The sedimentation reaction is especially valuable in tuberculosis. However, it is often influenced by intercurrent diseases, and it is also known that in severe cases of tuberculosis as well as in all cases of cachexia the sedimentation speed is sometimes normal. The author further discusses the significance of the sedimentation reaction in syphilis and in acute infections. He points out that after infectious diseases the return to the normal sedimentation speed is comparatively slow and he thinks that, as long as there is a marked acceleration, the disease is not completely cured and the therapy should be continued to prevent complications and relapses. This is of especial importance in cases of polyarthritis. In malignant tumors, in diseases of the blood, in circulatory disorders and in disturbances of the liver, however, the sedimentation reaction has little or no practical value.

Duodenal Ulcer and Polyglobulism: Relation Between Functioning of Stomach and Erythrocyte Picture.—Tuchfeld points out that in patients with gastric and duodenal ulcers the number of erythrocytes and the hemoglobin content is often considerably increased. He reports his own investigations on this problem and also reviews the observations of other investigators. Some authorities assumed a relation between changes in the hydrogen ion concentration of the blood and the increase in the erythrocytes. Tests which the author performed, however, did not indicate such a relation. He reasons as follows: Secretory hypofunctioning of the stomach (achylia) frequently concurs with a decrease in the erythrocytes, namely with anemia; in the same manner secretory hyperfunctioning (hyperacidity), which is usually found in gastric and especially in duodenal ulcers, concurs with polyglobulism. It is further pointed out that according to Castle the stomach produces a ferment which influences the erythropoiesis. Although the nature of this ferment is not known as yet, it is probable that in cases of gastric or of duodenal ulcer, in which the number of red blood corpuscles is increased, this ferment is produced in larger quantities and thus polyglobulism develops.

Monatsschrift für Kinderheilkunde, Leipzig

49: 1-88 (Jan. 30) 1931

Influence of Measles on Nephrosis. O. Tezner and J. Stross.—p. 1.
*Treatment of Empyema in Children. C. Stamm.—p. 11.
Experience with Whole Milk with Addition of Carbohydrate. J. Schoedel.—p. 17.
Examination of Capillaries in Case of Hemorrhagic Diathesis. A. Strobl.—p. 24.
*Case of Postvaccinal Encephalitis with General Vaccinal Eruption. M. Weichsel.—p. 28.
Diphtheria in Cologne from 1925 to 1930. W. von Frey and F. Thoenes.—p. 33.
Transmission of Inoculated Malaria from Mother to Child Through Placenta. K. Leven.—p. 46.

Treatment of Empyema in Nurslings and Children.—Stamm stresses that the prognosis of empyema is grave in infants; it is more favorable in young children and relatively good in older children. Among thirty cases of empyema in children up to 2 years of age, recovery was observed in eleven; while among twelve children, aged from 3 to 12 years, recovery occurred in eleven. The prognosis was more favorable in cases in which empyema developed after pneumonia than in those in which the two diseases developed simultaneously. A primary empyema is exceptional in childhood; occasionally it follows a trauma of the chest. In infants, empyema may originate from pyemia or septicemia. A purulent focus associated with otitis media, a suppurative inflammation of the tonsils or a retropharyngeal abscess may bring about a metastatic abscess in the lung and a subsequent purulent pleurisy. In older children a lobar pneumonia proved to be the most frequent cause of empyema, and a purulent bronchopneumonia during the first years of life; in such cases the empyema was frequently complicated by pericarditis and parenteral nutritive disturbances. The prognosis appeared unfavorable in infants with congenital syphilis. The mortality was considerable among children with an empyema associated with influenza and produced by a mixed streptococcal infection. In twenty cases pneumococci were found; staphylococci in eight, streptococci in six, staphylococci and streptococci in four, streptococci and pneumococci in two, streptococci and colon bacilli in one and influenza bacilli in one. Staphylococci proved to prevail during the first three months of life; in older children, pneumococci prevailed. In four infants thoracotomy has been performed on account of a menacing condition; all died. On the other hand, one puncture often resulted in recovery; seven punctures were required in a case of bilateral empyema in an infant aged 5 months. An infant with a pneumococcal empyema recovered after twenty-two punctures had been practiced. Among twenty-six infants aged not more than 1 year, recovery occurred in 30 per cent; among four children aged not more than 2, recovery was observed in 75 per cent, and it was observed in 88 per cent among children aged from 3 to 13. The punctures were usually followed by costal resection in the older children. Costal resection preceded by a puncture brought about healing in three children aged not more than 2 and in eight of eleven children aged more than 3. The author considers that punctures are the method of choice; when the pus becomes thick they may be followed by thoracotomy and drainage during the first two years of life and by costal resection in older children. The punctures may be advantageously followed by irrigations of the pleural cavity with an antiseptic or with physiologic solution of sodium chloride.

Encephalitis and Generalized Eruption Following Vaccination.—In a child, aged 17 months, severe cerebral phenomena and convulsions suddenly occurred on the nineteenth day after inoculation with vaccine; left-sided hemiplegia complicated by spastic hemiparesis appeared. Simultaneously vesicles developed on the chest, back, face, arms, neck and upper part of the right arm. The differential diagnosis from chickenpox was based on the aspect of the vesicles, their development near the inoculation pustule, and their simultaneous appearance. Moreover, the head and the mucosae were free from the eruption; there were no chickenpox patients in the family. The differentiation from epidemic encephalitis was based on the fact that no such cases have been recorded, and especially on the absence of postencephalitic parkinsonism as well as of torsion spasms, obesity or epileptiform seizures. Weichsel ascribes the simultaneous appearance of the cutaneous and cerebral phenomena to an excessive formation of antibodies. Intratesticular injections of cerebrospinal fluid and corneal inoculations of the contents of vesicles were made in rabbits but the results of both tests were negative.

Münchener medizinische Wochenschrift, Munich

78: 89-136 (Jan. 16) 1931. Partial Index

Significance of Method of Histochemical Examination for Studies on Physiology and Pathology of Skin. E. Urbach.—p. 89.
*Chronic Appendicitis with Symptoms of Gastric Ulcer. C. Kruchen.—p. 92.
*Technic of Autohemotherapy in Profuse Abdominal Hemorrhage. H. Knaus.—p. 94.
Extra-Oral Emergency Bandage in Fracture of Lower Jaw. B. Chatzkelson.—p. 98.
Significance of Psychology for Pediatrics. F. Hamburger.—p. 98.
Etiology and Therapy of Anal Fissure. T. Meissl.—p. 102.

Chronic Appendicitis with Symptoms of Gastric Ulcer.—Kruchen asserts that absolutely dependable signs of gastric ulcer are rarely found in the roentgenogram, and other signs are often difficult to interpret on account of the relation to the neighboring organs. Considerable attention has been given to biliary disturbances in connection with gastric symptoms. However, the fact that subacute and chronic appendicitis or their sequelae may also cause gastric symptoms has not received sufficient consideration. The author describes several cases in which pains usually developed one hour after eating and were localized in the region of the bulbus duodeni. Accordingly, duodenal ulcer was thought of. Roentgenoscopy revealed indefinite signs in most instances, but during careful observation symptoms were noted which spoke for disorders in the region of the appendix. In ten out of twelve cases the diagnosis of chronic appendicitis could be made before the operation, and following appendectomy the disorders disappeared.

Technic of Autohemotherapy in Abdominal Hemorrhage.—In order to prevent death from hemorrhage in gynecologic operations, especially in rupture of the tube in the case of tubal pregnancy, Knaus recommends the reinfusion of the blood. He gives the history of this form of autohemotherapy and mentions shortcomings in the former technic of this treatment. Then he describes a method that he employed successfully in nine cases. After the abdominal cavity has been opened, the fluid blood as well as the coagulated blood is placed by means of a dipper into a nickel container the lower part of which reaches into a warm water bath of 40 C. A number 4 apothecary's sieve, which is in the upper portion of the container, not only separates the coagulated blood from the fluid blood but also prevents cooling down of the blood. The infusion of this blood into the cubital vein of the arm is done as in transfusion from one person to another. The quantities of blood that can be reinjected in this manner vary between 500 and 1,200 cc., according to the degree of anemia and the general condition of the patient. It is emphasized that in none of the nine cases did the blood show a tendency to coagulate. The apparatus which keeps the blood at the proper temperature prevents coagulation, so that, if necessary, the reinfusion may be postponed until after the operation. The author asserts that no other method is so effective in preventing death from hemorrhage as this form of autohemotherapy. It makes the administration of restorative medicines superfluous and shortens the period of convalescence considerably.

Strahlentherapie, Berlin

39: 401-600 (Jan. 31) 1931

Absorption of Ultraviolet Rays by Protein-Forming Substances. F. Stähler.—p. 401.
Absorption of Ultraviolet Rays by Saturated Fatty Acids. O. Hartleb. —p. 442.
Isolation and Chemophysical Nature of Antixerophthalmic Vitamin A. H. Seel and F. Dannmeyer.—p. 449.
Influence of Wavelengths in Ergosterol Irradiations. E. Kisch and T. Reiter.—p. 452.
Dispersion of Light in Organic Bodies. J. Plotnikow.—p. 469.
*Examination of Skin and Clinical Phenomena During Treatment with Visible Cold Red Light. H. Cramer and G. Fechner.—p. 474.
*Influence of Red and Blue Rays on Growth. F. Ludwig and J. von Ries. —p. 485.
Antagonistic Action of Ultraviolet and Ultrared Radiations. M. Ponzio. —p. 490.
*Sunlight in Immunization Function of Skin. P. Woringer.—p. 493.
Treatment with Combined Roentgen and Ultraviolet Rays. K. Steiner. —p. 500.
*Treatment of Lymph Node Tuberculosis with Combined Rays. K. Mosdzien.—p. 507.
Type of Angstrom-Pyranometer. A. Ångström.—p. 526.
Electrical Pyranometer for Measurement and Observation of Sun and Sky Radiations. F. Albrecht.—p. 535.
Results of Observations with Davos Frigorimeter. M. Bider.—p. 541.
Frigorimetric Researches in Helsingfors. H. Lunelund.—p. 565.
Value of Schreiberhauer Climate Determined by Davos Frigorimeter. H. Tichy.—p. 581.
Value of Intense Sun Radiation Observed at Sea, Land Stations and High Altitudes. W. Gorczynski.—p. 587.

Examination of Skin and Clinical Phenomena During Treatment with Visible Cold Red Light.—Macroscopic changes were not found by Cramer and Fechner in the skin to which a clinically effective dose of red light had been applied; microscopic examination confirmed that the changes were not important and therefore the skin could not be a factor in the action of the rays. Photographs and microscopic examination of the capillaries indicated that there were merely physiologic and technical variations. Tests were made in order to ascertain whether immunobiologic changes occur under action of visible cold red light. To this purpose the effect of the light on the epinephrine and histamine reaction of the skin was investigated in five persons. The effect proved to be nil. Further experiments evidenced that the red light was also without influence on ultraviolet erythema. The results are explained by the fact that the red rays penetrate bodily tissues only at a depth, there their absorption and action takes place. Obviously visible cold red light cannot be used for treatment of superficial lesions of the skin; it is indicated in cases in which the nutritive disturbances are located deeply. The authors consider that the red light, like proteins, provokes a nonspecific irritation, mainly of the reticulo-endothelium. An intense reaction to the red light was observed in a case of chronic and afebrile rheumatic polyarthritis associated with pains and swelling of the hands and feet. Two irradiations, each of ten minutes' duration, were applied within three days; a characteristic onset of fever and increase of the pains followed. As soon as the fever subsided, the pathologic signs improved; they disappeared almost entirely after further irradiations. Visible red light was applied in a woman, aged 31, with a spina bifida occulta involving the cervical vertebrae. The patient suffered with interscapular pains persisting for years. The red light was tried after roentgen irradiations failed to relieve the pains. Twenty-eight sittings resulted in disappearance of the pains. Simultaneously the blood picture improved; the number of monocytes decreased from 12 to 3, while the number of lymphocytes increased from 13 to 31. On a repeated examination, the improvement proved to persist. A woman, aged 38, was treated with the cold red light for a roentgen burn of the vulva followed by a chronic inflammation. The effect of the treatment was insignificant; this was ascribed to an areactive phase of the mesenchyme. The amount of required cold red irradiations is greater than that of roentgen irradiations, but the former succeeded in cases in which the latter failed.

Influence of Red and Blue Rays on Growth.—The experiments of Ludwig and von Ries consisted in the following: Pregnant rats were placed in cages in which only red or blue rays of daylight could penetrate. (The details of the specially constructed cages are given). Thus offspring born in the cages were exposed to a monochromatic light. It appeared that the size and the weight (by 80 Gm.) were more considerable in the young exposed to red light than in the controls; they developed more rapidly and their general condition remained good. The size and the weight of the young exposed to blue light were greater than those of the controls but never reached those of the young exposed to red light. Analogous experiments were conducted, among others, on plants, lettuce and wheat; the bottom of the cages were then removed and the cages placed over the plant bed. The results were similar. Surprisingly, an ant hill appeared in a cage provided with a red glass while not a single ant was found in those with a blue glass. Thereupon a blue cage was placed over the ants, and the red cage nearby; the next morning, all the ants had moved to the red cage. Instinctively the ants found the life conditions to be better under red light than under blue light or daylight. The authors presume that an increased growth occurring under the action of red light is connected with an activation of the growth vitamins.

Action of Sunlight on Immunization Function of Skin.—Woringer stresses the difference between the nonspecific and the specific immunization function of the skin. The nonspecific function is called "dermophylaxis"; the specific function, "dermoantergy." The dermophylaxis is connected with the action of sunlight; it increases on exposure to sunlight and decreases with a persisting deficiency of light. Seasonal increases and decreases explain the more and less frequent occurrence of the so-called heliophobe infectious diseases. Besides sunlight, dermophylaxis depends also on the internal secretions; it decreases during puberty, pregnancy, confinement, certain liver diseases, and nutritive disturbances, and under a regimen poor in vitamins. It increases under a regimen rich in vitamins and poor in salt. While the mechanism of action of sunlight on dermophylaxis is so far not yet known, its action on the dermo-antergy, namely, on the eruptions of infectious diseases, was evidenced. The author's observations were made on patients with measles, chickenpox or on those inoculated with cowpox vaccine. Measles developed among children of a tuberculosis center; previously the children were exposed daily in bathing suits to sun rays. The rash proved more intense on the exposed parts than on the nonexposed parts of the body. In children during the incubation period of measles or of chickenpox one half of the body was exposed to the rays of a quartz lamp while the other half was covered with a black cloth. In those with measles, the eruption developed up to two days earlier, and it was more intense and disappeared sooner on the exposed half than on the nonexposed half of the body. In children with chickenpox, the vesicles developed early and were numerous on the exposed side; only a few vesicles appeared on the nonexposed side, one or two days later. Infants were vaccinated on both arms, and then one

arm was exposed to the rays. The pustules developed earlier and were larger on the exposed than on the nonexposed arm. The conclusion was drawn that light accelerates the production of antibodies and enhances the specific immunization function of the skin. Possibly the same phenomena develop in cases of infections which are not accompanied by an eruption.

Sun Rays Combined with Roentgen Rays in Treatment of Lymph Node Tuberculosis.—Mosdzien considers a combined roentgen ray and sun ray treatment as most favorable in cases of lymph node tuberculosis. The author treated 111 patients during the last two years; sixty-four were children and adolescents. In most of them the cervical lymph nodes were involved; in sixteen, the bronchial or the mesenteric lymph nodes. All adults, except one, presented tuberculosis of the cervical lymph nodes. The sun rays were provided by a quartz or by a carbon arc lamp. A marked pigmentation of the skin was avoided. The roentgen rays were passed through a copper filter; an aluminum filter was used when the diseased lymph nodes were superficially situated. From 150 to 190 kilovolts with from 4 to 6 milliamperes was employed. The rays were applied to two fields: the tube was placed sagittally on the anterior and on the posterior portion of the neck on the same side, thus including the whole involved region. The size of the nodes usually decreased after two or three irradiations each consisting of from 10 to 25 per cent of a unit skin dose. No more than three irradiations were employed; the interval between the first and the second irradiations was twenty days, and between the second and the third irradiations four weeks. The results were good in the fistulous and ulcerous forms of the disease. A smaller dose of rays and an aluminum filter from 13 to 7 mm. thick were used in the ulcerous form; the scars were insignificant. The dose of rays used in the fibrous forms was one third of a unit skin dose; the intervals between the irradiations varied from six to eight weeks. In children, the dose of rays was a half or a third of the dose used in adults. In twenty-four cases the results from roentgen treatment alone were compared with those from roentgen rays combined with artificial sun rays. Favorable results were obtained more rapidly after the combined treatment. Surgical intervention is indicated in cases completely refractory to irradiations.

Wiener klinische Wochenschrift, Vienna

44: 97-128 (Jan. 23) 1931

*Is Carcinoma an Infectious Disease? C. Sternberg.—p. 97.
Endarteritis and Periarteritis. H. Kahler.—p. 99. C'td.
Operative Treatment of Complicated Vesicovaginal Fistula: Remarks on Correction of Urethral Defects. W. Latzko.—p. 103.
Present Status of Early Diagnosis of Cancer of Stomach. W. Berger. —p. 108. C'cn.
Casuistics of Fatalities from Solution of Secondary Butylbrompropenylbarbituric Acid. W. Rippel.—p. 113.
*Collapse Therapy of Pulmonary Tuberculosis. A. Frisch.—p. 114.
Disturbances in Voice and Speech: Etiology and Treatment. E. Frōschels. —p. 115.

Carcinoma is Not an Infectious Disease.—After reviewing the tests and animal experiments of numerous investigators, Sternberg comes to the conclusion that all the investigations during the last decade have not demonstrated the existence of a pathogenic organism of true blastoma. On the other hand, it has been demonstrated that parasites may create a predisposition for malignant growths by causing chronic inflammation or irritation. However, in this respect parasitic organisms are of no greater significance for the pathogenesis of malignant tumors than are other injurious influences of chemical, thermic or physical nature. There is no specific organism which causes carcinoma; it is not an infectious disease.

Collapse Therapy of Pulmonary Tuberculosis.—In the first part of the article, Frisch discusses artificial pneumothorax. He gives indications and contraindications for unilateral as well as for bilateral pneumothorax. Before bilateral pneumothorax is induced, the vital capacity should be determined. The author further discusses the technic of artificial pneumothorax, the necessity of a careful control, the importance of rest for the patient during pneumothorax therapy, and also the duration of the treatment and its therapeutic value. In the last part of the article he discusses oleothorax, phrenic exeresis and thoracoplasty.

Zeitschrift für Tuberkulose, Leipzig

59: 225-304 (Jan.) 1931

Method for Preparation of Tuberculin. E. Maschmann and E. Küster. —p. 225.
Criticism of Calmette's Preventive Vaccination Based on Statistics in Baden. W. Berghaus.—p. 230.
Tubercle Bacilli in Organs in Cases of Experimental Tuberculosis. W. A. Lubarski and A. F. Korshinskaja.—p. 252.
Value of Hohn's Medium for Detection of Tubercle Bacilli. L. Frankl. —p. 262.
*Intradermal Use of Tuberculin in Treatment of Pulmonary Tuberculosis. A. Marberger.—p. 267.
Kaplan's Vaccine for Treatment of Pulmonary Tuberculosis. A. Fischer. —p. 274.
Care of Children Convalescing from Tuberculosis. A. Nohlen and M. Sarvan.—p. 278.

Intradermal Injections of Tuberculin in Pulmonary Tuberculosis.—Marberger says that undesirable local reactions can be avoided by using intradermal injections instead of subdermal injections of tuberculin. With the intradermal method, injections could be continued for years in patients with various forms of pulmonary tuberculosis. Changes induced in the pulmonary process are explained by the affinity of the specific local reaction, or biologic focus, for the pulmonary focus. The mechanism of the action of tuberculin, injected into the skin, does not consist in destruction of the tubercle bacilli but in a specific irritation of the reticulo-endothelial apparatus by means of the reticulo-endothelium of the skin and an increase of the defensive forces of the organism. Tuberculin injected intradermally promotes the formation of an induration in the perifocal exudative zone; it transforms the productive form of pulmonary tuberculosis into a stationary and the exudative into a productive form. The tuberculin treatment is contraindicated in the initial and acute stages of pulmonary tuberculosis, in cases of an advanced exudative or fibrocaseous form; also in cases in which high fever or an absolute anergy are found. The intradermal treatment was advantageously used in cases of productive, fibrous or a fibro-ulcerous tuberculosis, and in cases of puberty tuberculosis in which pneumothorax failed or could not be induced. The intradermal treatment was used in patients with a mild fever and a considerably reduced allergy but whose general condition remained good; further, the treatment was applied in cases in which previous subcutaneous injections of tuberculin had to be interrupted on account of excessive general and focal reactions. In patients treated with the intradermal method, the occurrence of hemoptysis became rarer. Koch's old tuberculin was used for the injections; the latter were made on the flexor surface of the forearm or on the extensor surface of the leg. The course of the treatment was guided by the size and the aspect of the infiltrate located in the center of the local inflammation. The reaction is considered as passable when the diameters of the infiltrate are more than 5 and 8 mm.; it is adequate when these diameters reach 10 and 15 mm.; the reaction is strong when the diameters are more than 20 mm. The injection can be repeated after from five to eight days, with a mild concentration, and after from ten to fourteen days with a strong concentration. A dose of 0.1 cc. is given with each injection, whereby a gradually stronger dilution is employed. In case of failure of the reaction after repeated injections, the dose may be increased to 0.15 cc. Two or three, sometimes even five or six, dilutions must be used until a subjective and an objective improvement sets in. The treatment ought to be discontinued if the patients are complaining of a general discomfort connected with an overcharge of the reticulo-endothelial system.

Zeitschrift für Urologie, Leipzig

25: 1-80, 1931

*Technic and Indications for Pneumoroentgenography of Kidneys. H. Viethen.—p. 1.
*Apparatus for Determination of Urinary Sugar. H. Citron.—p. 13.
Intravenous Pyelogram and Test for Kidney Functioning. P. Janssen. —p. 15.
Influence of Diabetes on Kidneys. R. Ehrmann.—p. 19.
Lithiasis and Bone Diseases. W. Weber.—p. 36.
Classification of Pseudophosphaturia. E. Sienkiewicz.—p. 42.
Rôle of Reticulo-Endothelial System in Acute Gonorrhea. E. A. Sselkow. —p. 48.

Technic for Pneumoroentgenography in Diagnosis of Renal Diseases.—Pneumoroentgenographic examination of one or of both kidneys was used by Viethen in 112 cases. Accord-

ing to Rosenstein's method, the puncture was made at the lateral border of the muscles of the back. Injections of from 100 to 150 cc. of oxygen were required for a distinct contrast picture in children and no more than 600 cc. in adults. The nephrograms appeared best from half an hour to one hour after the injection of oxygen, although pneumoroentgenograms of kidneys taken from sixteen to twenty-four hours after the injection were still usable. The pneumoroentgenographic technic is rather simple; nevertheless the use of the method is limited on account of the occurrence of complications. The latter consist in penetration of oxygen into the muscles, in puncture of the kidney, or in development of a scrotal, cervical or mediastinal emphysema. Puncture of the pleura with subsequent penetration of the gas into the pleural cavity, puncture of a large vessel or of a paranephric abscess, also of pyonephrosis, are the most grave complications. The author uses a needle with a lateral opening; it is 0.75 mm. thick and is provided with a mandrin and a movable metallic plate which is applied against the skin. Brauer's apparatus for pneumothorax, Forlanini's apparatus or Boeminghaus's syringe can be utilized for pneumoroentgenographic examination. The latter is indicated in cases of parenchymal tumors involving the upper pole or the marginal portion of the kidney when pyelography alone is insufficient. Small and nonpalpable tumors of the retroperitoneal space are another indication; the pneumoroentgenographic method proved also valuable in the diagnosis of a suprarenal or lumbar tumor and in perinephritis. The method can be advantageously combined with intravenous pyelography, when one of the urograms is unsuccessful and cystoscopic examination cannot be used. In cases of perinephritic suppurations, pneumoroentgenography is contraindicated. Two cases are described in which the diagnosis of renal tuberculosis was ascertained by the pneumoroentgenographic method while clinical and urologic examination, tests of renal functioning and roentgenograms were without avail.

Apparatus for Rapid Determination of Urinary Sugar.—The so-called glycophote, described by Citron, is a colorimetric apparatus; it enables one to determine the amount of sugar in the urine, with sufficient accuracy, in ten minutes. It consists of a rectangular metallic case 25 cm. long and 2.5 cm. wide, which contains a movable receptacle in which ten various colors are disposed as in a polarimeter. A tube with urine is introduced through an opening in the upper wall, and the screw is then moved until the color of the urine corresponds to one of those in the receptacle. The observation is made through two windows situated at the anterior wall of the receptacle. Owing to the presence of an objective, the urine can be simultaneously compared with two shades. A special arrangement (the technical details are given) allows one to determine a content of sugar amounting to even 9 per cent. The urine is poured into a measuring tube and boiled with a solution of sodium hydroxide in a water bath, for five minutes. The results of the urinalysis obtained with the glycophote agreed with those obtained with a polarimeter in cases of diabetes. The glycophote is much less expensive than a polarimeter; besides, no preliminary preparation of the urine is required. It is also preferable to fermentation apparatus, with which six hours is necessary for determination of the urinary sugar.

Zentralblatt für Gynäkologie, Leipzig

55: 193-256 (Jan. 24) 1931

Alleged Cyclic Changes of Vaginal Epithelium. H. Stieve.—p. 194.
New Method for Artificial Formation of Vagina. P. Müller.—p. 201.
Pathologic Anatomy of Vertebral Column and Pathogenesis of Gynecologic Backache. E. Hönck.—p. 203.
*Differential Diagnosis of Acute Adnexitis and Appendicitis. K. Neller.—p. 205.
Etiology of Tower Head. O. Irion.—p. 207.
After-Examinations on Patients Who Had Been Operated on for Tumor of Mamma Following Microscopic Examinations. H. Reinecke.—p. 213.
Etiology of Spontaneous Torsion of Uterine Tubes. O. Saitz.—p. 222.
*Value of Roentgen Examination in Diagnosis of Extra-Uterine Pregnancy. F. Szellö.—p. 224.
Porcelain Pessaries as Substitute for Hard Rubber Pessaries. H. Fischer.—p. 229.

Differential Diagnosis of Acute Adnexitis and Appendicitis.—Neller reports the clinical history of a girl, aged 21. The anamnesis as well as the clinical aspects indicated a perforative appendicitis and an operation was performed, which, however, neither corroborated the diagnosis nor completely explained the cause of the peritonitis. The patient died two days after the surgical intervention. With the additional information gained in the postmortem examination the case may be explained as follows: A slight bilateral adnexitis eight weeks previously had caused a suppurative oophoritis on the right side and pelvic peritonitis. After that a Douglas abscess developed, which perforated into the rectum. The discharge of pus had passed unnoticed. However, the attacks of diarrhea, which were mentioned in the anamnesis, may have been caused by it. Following discharge of the pus the fever abated and the patient's condition improved. The communication between Douglas's pouch and the rectum made an invasion of intestinal bacteria into the Douglas pouch possible. In a peculiar manner, perhaps by temporary closure of the rectal fistula, a putrid infection developed in the pouch and perforated into the free abdominal cavity. Two days after this, the patient was brought to the hospital in a state of severe septic peritonitis. On the basis of the anamnesis and of the clinical aspects, the incorrect diagnosis of perforative appendicitis seemed unavoidable.

Roentgen Examination in Diagnosis of Extra-Uterine Pregnancy.—Szellö describes two cases of intraligamentary, extra-uterine pregnancy, in which roentgenoscopy proved a valuable aid in the diagnosis. However, it is emphasized that roentgenoscopy is only an aid in the diagnosis, not the only diagnostic method. Negative results of roentgen examination, that is, the absence of fetal bone shadows, do not exclude the possibility of an extra-uterine pregnancy, and if bone shadows are present it cannot be positively stated whether the pregnancy is intra-uterine or extra-uterine, for, as one of the two cases proved, even in extra-uterine pregnancy the fetus may lie symmetrically between the innominate bones. For this reason, bimanuel examination is necessary in addition to the roentgenoscopy; for by means of bimanual examination it is ascertained that the position and the enlargement of the uterus do or do not correspond to the position and the development of the fetus.

Arkhiv Biologicheskikh Nauk, Leningrad

30: 519-692, 1930

Quantitative Determination of Bacteria in Water. L. Gurfeyn.—p. 529.
Beer Yeast in Treatment of Avitaminosis B. M. Gorbunova.—p. 581.
Isolation of Brucella Abortus from Cow's Milk. A. Krol.—p. 585.
Influence of Thyroid and Sympathetic System on Blood Calcium. E. Speranskaya-Stepanova.—p. 593.
Influence of Thyroid on Blood Sugar. V. Baranov.—p. 603.
*Retention Function of Liver. V. Konstantinov.—p. 629.
*Influence of Local Inflammation on Reticulo-Endothelial Absorption. V. Konstantinov.—p. 651.

Retention Function of the Liver.—In order to ascertain the distribution in the organism of colloidal dyes introduced into the portal vein, Konstantinov injected solutions of trypan blue, lithium carmine and colloidal silver, and suspensions of india ink and of staphylococci in the mesenteric or auricular veins of rabbits. A single injection or several injections were given within a few days; then the animals were killed and their organs examined under the microscope or by the colorimetric method. The absorption by the liver of colloids possessing a high degree of dispersion, as the dyes, was not increased; moreover, their distribution in the organism proved to be the same as when they were injected into the veins of the greater circulation. On the other hand, a large amount of substances possessing a low degree of dispersion, as india ink and staphylococci, were retained in the liver, namely, in the Kupffer cells; therefore a small quantity of these substances penetrated other organs or did not penetrate at all. The absorption of colloidal silver was less pronounced than that of the suspensions and more pronounced than that of the dyes. The increase in the retaining function of the liver was most marked when small doses were repeatedly injected. The author points out that an analogy may exist between the behavior of the liver toward dyes and suspensions introduced into the portal blood in normal condition and that toward colloidal substances, as micro-organisms or toxins, entering the portal blood in pathologic conditions.

Absorption of Trypan Blue in Reticulo-Endothelial System.—Vital staining with small doses of trypan blue was

used by Konstantinov for study of the absorptive function of the reticulo-endothelial system in the course of a local inflammatory process. The experiments were conducted in rabbits. From two to eight inflammatory foci were produced by implanting pieces of sponge or by injecting turpentine or suspensions of infusorial earth or of virulent staphylococci into the subcutaneous tissue of the animal's back. Normal rabbits and rabbits treated with horse serum served for control. All animals were injected with a solution of trypan blue in the auricular veins. The animals were killed after repeated injections and their organs were examined microscopically. The results indicated that the absorption of colloidal dyes was increased in some parts of the reticulo-endothelial system. Granular deposits of the dye were most marked in the endothelium of the bone marrow; sometimes also in the Kupffer cells. Evidently the functioning of the reticulo-endothelial cells increased under irritation caused by toxic substances or products of protein disintegration proceeding from the inflammatory foci. The retention of the dye in the bone marrow was not associated with an increase of the hematopoietic functioning, since the deposits were less pronounced there after the introduction of turpentine or of staphylococci than after that of infusorial earth or of a foreign protein, although the former two caused a considerable myeloid hyperplasia of the bone marrow and leukocytosis. There was no parallelism between formation of blood and vital absorption of colloidal substances, which are both considered as functions of the reticulo-endothelial system.

Kazanskiy Meditsinskiy Jurnal, Kazan

26: 1067-1176 (Nov.) 1930

Experience with B C G Injections. N. Blagoveshchenskiy and I. Vasilev.—p. 1067.
Influence of Thyroid on Blood Sugar. V. Baranov.—p. 603.
p. 1080.
Value of Costa's Reaction in Malaria. E. Sidorova.—p. 1094.
*Use of Trinitrophenol for Disinfection of Operative Field. V. Potapov.—p. 1101.
*Value of Peret's Lipoid Reaction in Differentiation of Tumors. R. Shub.—p. 1119.
*Chlorides of Sweat and Water-Chloride Metabolism During Pregnancy. B. Tarlo and N. Olerskaya.—p. 1123.

Trinitrophenol for Disinfection of Operative Field.—Potapov used 1, 3 and 5 per cent alcoholic solutions of trinitrophenol for disinfection of the operative field in 741 cases of a major intervention. In about 50 per cent of the cases the intervention was urgent and therefore no preparation of the skin had taken place. Of thirty-four cases in which an operation was made on bones, suppuration of the postoperative wound never occurred. After fifty-two gynecologic operations, such suppuration was observed in three; among fifty cases of a strangulated hernia, the suppuration developed in five. Of 101 laparotomies or interventions on the gastro-intestinal tract, suppuration of the postoperative wound occurred in 14. Thus the proportion of cases in which suppuration occurred amounted to 6.4 per cent. Fragments of skin stained with a trinitrophenol solution of various concentrations were examined under the microscope. While a 1 per cent alcoholic solution of trinitrophenol proved to stain only the surface layer of the epidermis, a 3 and a 5 per cent solution penetrated into the deep layers of the epidermis without penetrating into the hair follicles, sebaceous or sweat glands. Thereupon a 3 per cent solution was used for the disinfection. The author points out that an aqueous solution of trinitrophenol is not advisable because it does not remove the sebaceous matter from the skin. The trinitrophenol solution does not provoke irritation and burns of the skin, which are sometimes observed when tincture of iodine is applied. Moreover, staining with a trinitrophenol solution allows control by roentgen rays during operation. Staining of the body and bed linen by the trinitrophenol solution is a disadvantage of the method; but the stains are easily removed.

Peret's Lipoid Reaction in Diagnosis of Tumors.—The technic used by Shub was the following: From 3 to 5 cc. of blood was withdrawn from the patient's ulnar vein; after removal of the clot, 0.1 cc. of the serum was placed in a test tube; a physiologic solution was added to make 1 cc. Then a 0.25 per cent solution of saponin was added (the dose of saponin was such as to hemolyze a 2 per cent suspension of erythrocytes within twelve minutes) and 1 cc. of a 2 per cent suspension of sheep's erythrocytes was poured in. In forty-four cases of a supposed cancer of the internal organs, the lipoid index of the reaction was low (from 0.49 to 0.53), which is characteristic for the serums of patients with cancer. Thirty-seven of them presented an early form of uterine cancer, which could hardly be recognized on clinical examination. In thirty-two cases in which the diagnosis between a malignant tumor and fibroma was uncertain, the average lipoid index equaled 1.5, which is characteristic for an adenocystoma; a glandular adenocystoma of the ovaries was found on operation. In a few cases, metrorrhagia suggested the diagnosis of a submucous fibromyoma or a cancerous erosion. The lipoid index was 2.7, characteristic for a fibromyoma; the diagnosis was later confirmed on operation. The average lipoid index was 3.9 in patients with a dermoid cyst; it was 0.26 in healthy persons. It appeared that the occurrence of cancer is most frequent in patients with an asthenic constitution and that of fibromyoma in patients with a pyknic constitution. Adenocystoma was most frequently encountered in patients with a normal constitution. The connection between constitution and lipoid index ought to be studied further.

Chlorides and Water-Chloride Metabolism in Pregnant Women.—Tarlo and Olerskaya determined the amount of chlorides in the sweat, blood and urine of ninety-five pregnant and fifteen nonpregnant and healthy women. The average amount of chlorides in the sweat was 461 mg. per hundred cubic centimeters, in nonpregnant women, 485 mg. during the first half of pregnancy; 367 mg. during the second half of pregnancy, and 261 mg. in pregnant women with toxicosis. In the blood, the average amount of chlorides was 455 mg. per hundred cubic centimeters in nonpregnant women, 499 mg. during the first half of pregnancy, 515 mg. during the second half of pregnancy and 500 mg. during pregnancy with toxicosis. In the urine, the average amount of chlorides was 1,539 mg. per hundred cubic centimeters in nonpregnant women, 1,497 mg. during the first half of pregnancy, 926 mg. during the second half of pregnancy and 626 mg. during pregnancy with toxicosis. The decrease of chlorides in the sweat and in the urine of pregnant women is the result of changes in the water-chloride metabolism, whereby water is intensely retained in the tissues, the renal functioning remaining presumably intact. The tendency to edema is considered as a specific reaction of the connective tissue during pregnancy.

Terapevticheskiy Arkhiv, Moscow

8: 431-568, 1930

Influence of Physical Effort on Blood Pressure. S. Mindlin, I. Bernshtein and A. Shulgin.—p. 443.
*Disturbances of Water-Chlorine Metabolism in Diabetes Insipidus. L. Chapkevich.—p. 477.
Pathogenesis of Intestinal Stasis. V. Smotrov and A. Uspenskiy.—p. 495.
Roentgen Study of Intestinal Stasis. A. Uspenskiy and V. Smotrov.—p. 513.
Action of Dioxyacetone on Carbohydrate Metabolism. I. Mukosey.—p. 533.
Large Doses of Iron in Treatment of Secondary Anemia. S. Sherman and R. Akhrem-Akhremovich.—p. 543.
Treatment of Surgical Complications of Diabetes. A. Gornshtein.—p. 555.

Disturbances of Water-Chlorine Metabolism in Cases of Diabetes Insipidus.—Chapkevich distinguishes three types of disturbances of water-chlorine balance connected with diabetes insipidus. To the first type belong cases in which the chlorine of the blood is increased and the water is decreased (hyperchlorine-hypohydremic type); to the second type belong cases in which the chlorine of the blood is normal or decreased while the water is increased; to the third type belong cases in which the two types are combined. Namely, a normal chloremia, an exaggerated chloruria and a thirst hydremia, characteristic for the hypochloremic type, are combined with a forced polyuria, loss of weight and signs of dehydration, characteristic for the hyperchloremic type. While the primary water metabolism disturbance depends chiefly on the tissues, the disturbance of the chlorine metabolism depends on the kidneys. Changes in the pituitary may be associated with lesions of the hypothalamus in the hyperchloremic type but not with lesions in the fourth ventricle responsible for the hypochloremic type. A retrograde degeneration of the centers in the fourth ventricle may be associated with or followed by lesions of the water metabo-

lism center in the hypothalamus. This results in the development of the combined type of diabetes insipidus. The author describes one case of the hyperchloremic type and another of the mixed type. The presence of signs of degeneration in the two cases, as enuresis, asymmetry of the face and malformation of the skull, pointed to constitutional defects in the central nervous system. In the second case, the disease was of longer standing and therefore more nervous centers were involved.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 273-364 (Jan. 17) 1931

Premature Separation of Normal Placenta. K. de Snoo.—p. 276.
*Treatment of Congenital Dislocation of Hip. C. P. van Nes.—p. 289.
Intubation with a Catheter. K. S. Nanninga.—p. 297.
Are Short Radio Waves Injurious? M. N. Acket.—p. 298.
Mutations Artificially Produced by Means of Roentgen Rays. A. B. Droogleever Fortuyn.—p. 301.
Torsion of Pedicle of Cyst of Lymph Node in Great Omentum: Case. G. W. Tromp.—p. 311.

Treatment of Congenital Dislocation of Hip.—Van Nes emphasizes that congenital dislocation of the hip must be treated as early as possible. The earlier the treatment, the better the result. The reduction must be accomplished, as far as possible, without the aid of surgery. In a few sharply circumscribed cases, an operative intervention may be indicated. In old cases, improvement can be brought about by palliative interventions: (1) osteotomy; (2) a stabilizing support.

75: 365-460 (Jan. 24) 1931

Manifestations of Ménière's Disease. F. H. Quix.—p. 366.
*Surgical Tuberculosis of Kidney in Children. J. A. Weijtlandt.—p. 373.
Value of Bacteriologic Examination in Irradiation of Uterine Cancer. D. den Hoed.—p. 383.
Is There Periodicity in Occurrence of Influenza? J. G. Siestrop.—p. 388.
Synostosis of All Cervical Vertebrae in Spina Bifida Cervicalis. F. Verbeek.—p. 392.

Surgical Tuberculosis of Kidney in Children.—Weijtlandt has found unilateral surgical tuberculosis of the kidney in children more common than is generally supposed. It is likely that a number of cases discovered in adults had begun in childhood. In four of his cases the first suggestion of renal tuberculosis was obtained through urinalysis. Renal tuberculosis in children may show the same symptoms as in adults. However, nocturnal incontinence is more common in children—it occurred in three of the author's nine patients. Sometimes incontinence is the first symptom of the disease, apparently induced reflexly. In fact, in the presence of incontinence of the urine in children it will be well to consider the possibility of renal tuberculosis. Urinalysis offers a simple means of recognizing renal tuberculosis in the early stages (albumin, leukocytes, erythrocytes, tubercle bacilli, absence of other bacteria). In order to apply rational treatment—nephrectomy—one must demonstrate that only one kidney is involved and that the other is sound. That requires a special urologic examination (cystoscopy, catheterization of the ureters, and possibly also pyelography). With the newer instruments there is no difficulty, even in young children. Anesthesia is seldom necessary. Sometimes operative exploration of the kidneys or ureters is necessary for a diagnosis. In closing, the author emphasizes that the systematic examination of the urine of children with vague general or abdominal pains leads often to the discovery of renal tuberculosis at a time when there are no clinical symptoms.

75: 461-560 (Jan. 31) 1931

Prolapsus Uteri. M. L. Muller.—p. 462.
*Experimental Production of Manifestations of Dementia Praecox. H. de Jong.—p. 474.
Pulmonary Tuberculosis in Adults with Surgical Tuberculosis. P. J. L. de Bloeme.—p. 484.
Aschheim-Zondek Test. B. C. Hopman.—p. 490.
Case of Pseudotyphoid in Java with Remarks on Differential Diagnosis. P. B. van Steenis.—p. 495.

Experimental Production of Manifestations of Dementia Praecox.—De Jong gives a survey of the various phases of the psychic tests performed with bulbocapnine in the interest of psychiatric demonstration. The author thinks that he has furnished an experimental basis for the intoxication theory of catatonia, the most serious form in which schizophrenia may occur. But even the later manifestations of dementia praecox may be included, since he has shown that also mezcaline may produce a catatonic condition, and, indeed, in doses that, in comparison, far exceed those that can be given to human beings. The slighter intoxication causes in man a psychosis-like condition with hallucinations, together with autonomic manifestations, such as vomiting, salivation and mydriasis. The author emphasizes that he has shown thus the possibility of a complete and distinct psychophysiologic parallel intoxication in the sense of the triad of the dementia praecox principle, and, moreover, through the combination of manifestations in man and animals caused by mezcaline, which latter were not previously known. The psychic manifestations that mezcaline may produce in man are of such a nature that it is a question whether there is not a complete likeness to acute phases of schizophrenia. Be that as it may, the principle of dementia praecox is there, but mezcaline alone is not sufficient to produce all the details of this condition. The catatonia that it produces is a variant in which the negativism comes out strongly, as also the assumption of strange or awkward attitudes. The bulbocapnine gives a variant in which catalepsy and dramatic attitudes come to the fore. Auditory hallucinations are not produced by mezcaline, and, as a rule, hallucinations are not produced by bulbocapnine. Cannabis causes different psychic manifestations. But another poison that produces, in an entirely different manner, a psychophysiologic parallel intoxication—alcohol—may cause marked auditory hallucinations or paranoid conditions. The author thinks therefore that, taking it all in all, the simple schizophrenia poison is not yet known but that scientifically there is nothing in the way of the assumption of a poison as the cause of all the symptoms of dementia praecox.

Finska Läkaresällskapets Handlingar, Helsingfors

72: 955-1078 (Dec.) 1930

*Treatment of Rectovaginal Fistulas. E. A. Björkenheim.—p. 962.
*Urobilinuria After Ingestion of Fluids and Physical Exercise in Compensated Cardiac Disease. E. Adlercreutz.—p. 974.

Treatment of Rectovaginal Fistulas.—For rectovaginal fistulas located above the sphincter ani in the lower part of the rectum, Björkenheim advocates treatment by the perineal route according to Guerin, Sänger and others. Since high rectovaginal fistulas may heal spontaneously, treatment of these should for a time be expectant; if healing does not occur, operation by the perineal route according to Legueu is recommended. Six cases are reported.

Urobilinuria After Ingestion of Fluids and Physical Exercise in Compensated Cardiac Disease.—In experiments on eleven patients with heart disease with compensation and thirteen persons without heart disorder, Adlercreutz found that the ingestion of 1 liter of water followed by bending exercises done twenty-five times caused a "pathologic" urobilinuria in the patients with cardiac disorder. He refers to recent investigations revealing the importance of the liver in the water metabolism of the organism and queries whether this partial function of the liver is especially called on in these cases with heart disease because there is after all a latent cardiac insufficiency.

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*Case of Progressive Muscular Dystrophy (Pseudohypertrophic Form). R. Eeg-Olofsson.—p. 33.
*Some Cases of Lymphogranulomatosis with Nervous Symptoms. V. Johnsson.—p. 39.
Female Sex Hormones. A. Westman.—p. 55.

Case of Progressive Muscular Dystrophy (Pseudohypertrophic Form).—In Eeg-Olofsson's case in a woman, aged 38, without known hereditary tendency to the disorder, the disturbance began unusually late, at the age of 26, and was aggravated during pregnancy.

Lymphogranulomatosis with Nervous Symptoms.—In Johnsson's four personal cases and thirty-three cited from the literature only eight presented cerebral complications; the others, spinal. The most common forms of nervous disturbances in lymphogranulomatosis, together with the course and pathogenesis, are discussed.